Vol. XL. MARCH, 1928 No. 1

THE WILSON BULLETIN

A Magazine of Field Ornithology

Published by the
WILSON ORNITHOLOGICAL CLUB
at
SIOUX CITY, IOWA

Entered as Second-class Mail Matter, July 13, 1916, at the Postoffice at Sioux City, Iowa, under Act of March 3, 1879.

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Published quarterly, in March, June, September, and December, as the official organ of the Wilson Ornithological Club, at Sioux City, Iowa.

The current issue of the Wilson Bulletin is printed by the Verstegen Printing Company, Sioux City, Iowa.

The Wilson Bulletin is sent to all members not in arrears for dues. The subscription price is $1.50 a year, invariably in advance, in the United States. Outside of the United States the subscription rate is $2.00. European Agents, Dulau and Company, Ltd., 34-36 Margaret St., Oxford Circus, London, W. 1., England.

All articles and communications for publication, books and publications for notice, and exchanges, should be addressed to the Editor.

New subscriptions, changes of address, and applications for membership should be addressed to the Secretary. Personal items, news of events in the scientific world, and other notes suitable for our "Notes Here and There" department may also be addressed to the Secretary.

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WILSON BULLETIN

A Quarterly Magazine Devoted to the Study
of Birds in the Field
and the Official Organ of the

WILSON ORNITHOLOGICAL CLUB

Edited by
T. C. Stephens, *Editor-in-Chief*
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Volume XL
1928

Published Quarterly
by the
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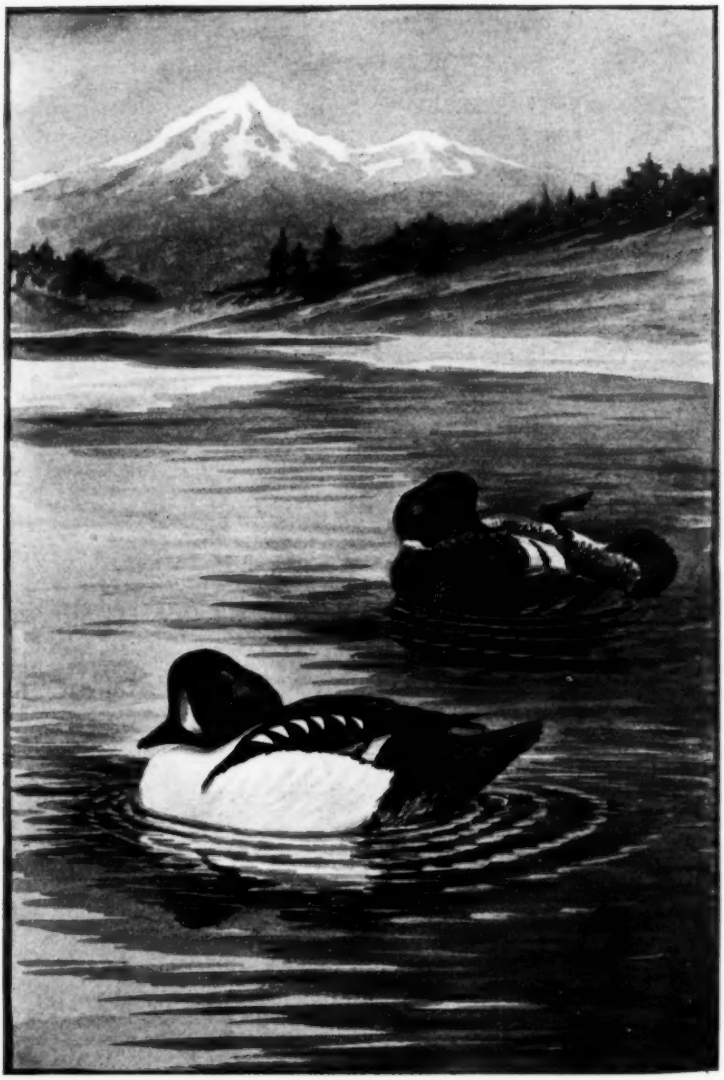


BARROW'S GOLDEN-EYE
Male, lower. Female, upper.

UNIV. OF MICH.

THE WILSON BULLETIN

A QUARTERLY MAGAZINE OF ORNITHOLOGY
Published by the Wilson Ornithological Club

Vol. XL. (Old Series) No. 1 March, 1928

Vol. XXXV (New Series) Whole Number 142

THE COURTSHIP BEHAVIOR OF BARROW'S GOLDEN-EYE
(*Glaucionetta islandica*)

BY EDMUND JOSEPH SAWYER

Probably for most readers of the WILSON BULLETIN a species like Barrow's Golden-eye has a certain plus-attraction. Comparatively few "arctic" species are found as nesting birds within the United States, south of Alaska. Among the ducks only the Pacific Harlequin seems to share a status closely similar to that of the Barrow's Golden-eye. There is an element of peculiar, human appeal in the mere idea of a bird that savors of the ice-fields and the midnight sun choosing, in considerable numbers and as if against the pull of instinct, to renounce the land of its primitive origin and adopt a homestead within our own boundaries. Yet that appeal is a mere hint of the real thrill that comes to one who first looks on a flock of these usually rare ducks competing for nuptial favors on some secluded little lake in a favored locality of our Rockies. "Barrow's Golden-eyes," you exclaim to your inner self — your bird-loving self, that is to say — and something (a kind of ornithological patriotism) insists that those resplendent drakes and coquettish hens are most ardently approving of these United States as a place altogether good enough to be used as a setting for their amours; nor is the thrill lessened when you reflect, as you do, that these amours will find their full fruition within short walking distance of the "Holy Ground" whereon you stand.

PLACE AND PERIOD OF THESE STUDIES

This species is a permanent resident in Yellowstone Park. Before, during, and after the following observations I saw it in various waters —in the Gardiner River, particularly. For the most part, however, Ice Lake was the concentration point in the Mammoth region and I shall confine my remarks mainly to observations there made, especially because nothing new was seen elsewhere of their courtship behavior. Ice Lake (so-called from having at one time furnished ice for cold storage at Mammoth Hot Springs) is situated two and a half

miles south of the park's northern entrance. Only half a mile north of the Wyoming boundary it lies within that narrow strip of southern Montana which is embraced by the park. Its elevation is approximately 6,000 feet. It is really a pond of only some four to six acres' extent; of irregular egg-shape, its extreme length may be four hundred yards, greatest width (near northern end) rather less than two hundred yards; it comes to an irregular blunt point at its southern end. It lies in a hidden pocket of sage-covered hills, but a thicket of aspens and alders extends down to the northwest shore. The eastern shore is low and marshy, affording nesting to a small colony of Thick-billed Redwings; while on the western side the land rises steeply and almost steadily to the very base of Mount Sepulcher's cliff-like eastern side, distant about a mile and a half. I visited this lake daily for

nearly a month in 1924 alone, spending from one to eight or more hours on each visit, probably averaging four or five hours; this included every hour of daylight. It was not found that time of day or state of weather had much to do with the actions of the birds.

Daily observations on Ice Lake began April 17 when, passing on horseback, I saw, as my notes record, "about one hundred and fifty Barrow's Golden-eyes, ten to thirty Mallards, probably also a few teal." It should be noted that those figures were the merest estimates from some distance on horseback. At that time the lake was frozen over except for a rim some twenty-five feet in width marking its shoreline. Most of the ducks were swimming in this open margin, but several were standing on the ice, a few Mallards walking on it. On the following day an observation blind was in operation and nearly all subsequent notes and sketches were made from this blind. The latter, a small tent, designed and made by myself for the purpose, was erected close to the water's edge and near an alder thicket on the west

shore and close to the mouth of one of the two small creeks which feed the lake on that side. Within fifteen minutes after I entered the blind on April 17 at six P. M., a pair had alighted almost directly in front and had very obligingly allowed me to witness the consummation of their marriage. But this soon proved no case of exceptional fortune, other pairs were equally obliging and, before many days, the affair, rather elaborate though it is, became an old story and my detailed notes were indeed profusely illustrated.

A Surprising Spectacle

It was astonishing to me to see all this wholesale mating going on long before nesting sites would be selected. A nesting box which I early erected in what seemed a suitable location beside one of the tributary creeks and in clear view from the lake, a hundred feet distant, was apparently never even inspected by the birds; before the next spring beavers had felled the aspen tree to which the box had been attached. One hundred and fifteen individuals were counted on April 24; there had been no distinct lessening in the number since systematic observations had begun on the 17th. Winter conditions still held in the nearest nesting haunts — small lakes less than a mile away; these lakes were still locked fast in thick ice and surrounded by deep snow. Yet, on that April 17, and perhaps much earlier, complete mating was already occurring on a broad scale, virtually every member of the flock seeming to indulge; this state of affairs continued daily for weeks. It was not until May 13 that I found a nest of fresh eggs; these I collected for the Yellowstone Park Museum, where they are now exhibited. About that date I abandoned my daily visits, although the visits continued to be frequent; there were still about seventeen birds on the lake.

My studies were continued each spring until 1927, inclusive; but practically no new data were secured after the first year; corroboration of former observations and additional sketches of attitudes previously noted were practically the only things gained. Hence, nothing of material importance will be lost, while confusion may be avoided, by confining my account, as I shall, rather strictly to the year 1924. Perhaps the advantageous position of my blind can be more clearly realized when I add that the golden-eyes often swam within a dozen feet of me and sometimes one could be seen diving and then busily feeding on the bottom in less than two feet of water close to shore.

Rivalry

The nuptial behavior as I observed it may be divided in a natural, if general, way into two main periods. These are, first, rivalry; sec-

ond, actual mating of a given pair. Rivalry is a varied and rather complicated process and, when the entire flock or most of it is involved, as frequently occurs, the scene is one of great animation and excitement. It is then to all intents and appearances a busy marriage mart, complete with audible and frenzied bidding and the wild gesticulations of those fearful of being raised. Though each drake obviously has only his own poor self to offer one will nevertheless look in vain for the individual who makes this offer in any self-effacing manner. Competitors are many, time flies, supply is limited, females are most ravishing and in no procrastinating mood; every drake seems obsessed with all this.

On the drake's part, head bobbing and elaborate neck pumping and stretching are the most outstanding actions; these motions are grotesque and spectacular, as, for example, in the sudden upward thrust of the head. (See Figures 10-1, Plate 2). In many of his gestures the neck is extended to a surprising length. With neck stretched upward (as in Figures 6-9 of Plate 1) the bill may be opened and shut at one to three second intervals in repeated low quacks. I think this is more common during rivalry, but I have noted it when the drake seemed to be courting a certain female. A frequent act of the drake is the backward kick which sends a spurt of water backward and upward in the wake of the swimming bird (Fig. 2 on Plate 2). There is much quarreling among the drakes; hot pursuits on, above, and under water (see Figures 12-18, Plate 2).

The actions of the female during rivalry are chiefly various grotesque movements of the head and neck as she swims about. The extreme example is a snaky movement of the neck as the head is swept forwards and backwards, from extreme side to side of the bird, in a generally horizontal plane. (See Figures 19, 21-23, on Plate 2). What is properly a mating pose is illustrated in Figure 20, Plate 2. It is included here to indicate the fact that the females thus often manifest desire without relation to the mood or proximity of any male.

Rivalry, particularly in this flock aspect, does not seem to follow a regular and progressive plan as does the actual mating and its consummation. There may, however, be a standardized method of procedure throughout; but at least this could not be noted where so many competing birds were concerned and moving swiftly to and fro in a mixed flock. One of my field notes says (April 19): "Though a few birds can be seen courting at almost any time, a sort of courting bee seems to seize the flock at intervals averaging about one hour; then a dozen or more males will be seen throwing their heads high, kicking

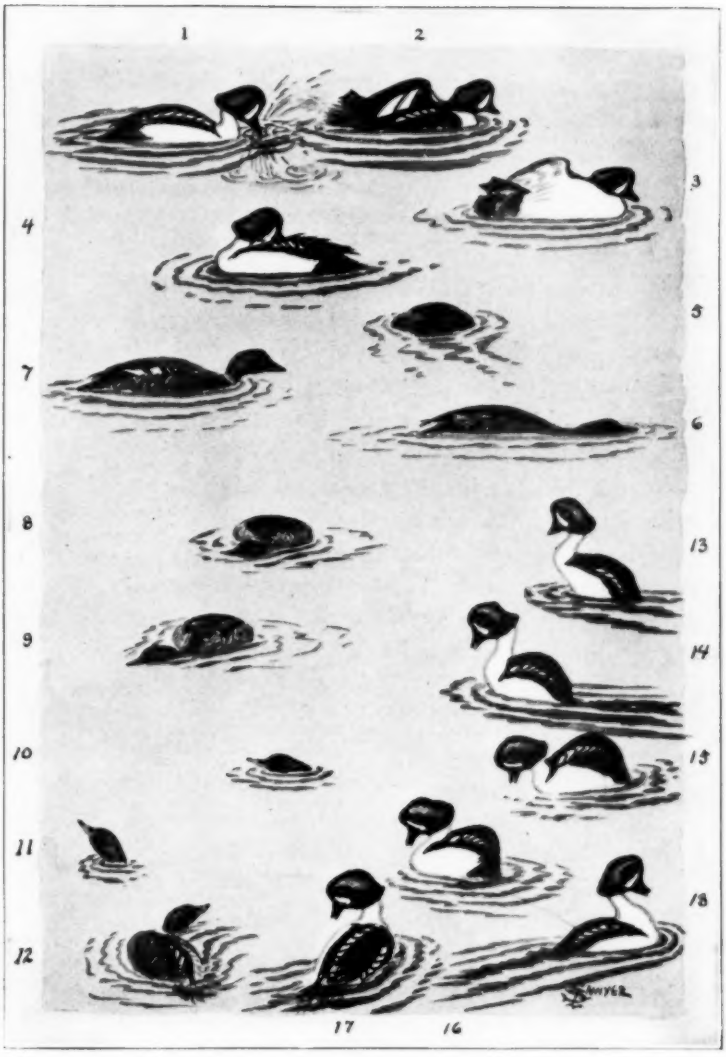


PLATE 2. BARROW'S GOLDEN-EYE. Attitudes during rivalry. The actions and attitudes do not appear to occur in any regular order or sequence, thus differing from those of final mating.

up the water, while many females are twisting their necks from side to side. But, at these times the sexes form a helter-skelter mixed flock, and no system or particular purpose is apparent. A female sometimes drives away another rival female, males drive away rival males." Yet there is some positive evidence that the rivalry and competitive courtship is in fact a rather general scramble in which the actions and postures do not occur in any given order, but, hit or miss, according to the chance impulse of the moment; though these impulses are doubtless to attract or impress and win favor, no given act — as, say, a bob of the head — can be predicted. Yet it is true that many times several males will perform the same act at once or nearly so; that looks like jealous competition in the case of that particular time and act. Similarly, the notes of the drakes tend to occur in chorus or nearly so, following intervals of comparative silence, as if in competition.

The strange thing to observe is that, after an hour or so of this frenzied rivalry and showing off, the game always appears to end about where it began, with quite negative results. If any successful wooing has been done, certainly one can not distinguish the proud and happy groom from the possible dejected swain who loved and lost; nor can the blushing bride be told from the despairing spinster. A pair might, it is true, separate from the main flock and consummate their mating during the general conference; or, again, here and there a couple may be seen *in coitu* when most of the flock is busily feeding immediately following their dispersal. Still it was never apparent that any of these "understandings" were definitely traceable to anything which could be seen accomplished at the flock gatherings. Nevertheless, I do not doubt that some extent or kind of selection occurs during the gatherings. I am probably merely pointing out the difficulty of actually noting the steps and manner of the process from beginning of competition to final mating act.

When the flock had, for the time being, more or less broken up one could often see the working of individual jealousies and rivalries and might note appearances of fidelity or inconstancy. The males seemed the more fickle, while for the most part they showed great respect for the females' privilege of choice. Males chase away males and females. Females chase away both sexes also. Just after the bathing which follows a mating completely enacted the female is especially given to repulsing intrusive males and females alike. One of my field notes reads, "Watched what appeared a pitched battle, breast to breast (two males); very loud splashing the only demonstra-

PLATE 3. BARROW'S GOLDEN-EYE. Attitudes during mating. From the top of the plate the attitudes are shown in general order of sequence, except that figures 8-12 and 13-18 are according to definite natural order.

tion apparent, the water flying and both birds rising about clear of the surface two or three times; it (the contest) lasted about twenty seconds, then each (contestant) joined a waiting female (some yards away) and all four indulged in much head bobbing." The males do a lot of twitching in the water with their bills — a general courting practice — but particularly for a minute or so before conclusively mating as described elsewhere.

Mating

There were usually a number of "inviting" females to be seen floating like half submerged logs on the pond, especially after the dispersed flock had had some little time for feeding. The appearance of the female in this position is remarkable and thoroughly characteristic of her mood. For many minutes at a time the bird looks like a rounded piece of driftwood as she lies half submerged for her entire length, including head, neck and bill. She sometimes emits a low clucking call in this attitude. Here may be mentioned a very striking thing which obtained among the birds in general; that is, the females, so far as one might judge by behavior, were decidedly more precocious than the males in their desire. With a given pair the female's period begins long in advance of the male's and continues unabated until the male's period, only two or three minutes in duration, is over. It was a common thing to see a half sunken duck float and drift invitingly about a drake for a quarter of an hour or more, while he showed not the slightest knowledge of her existence. Occasionally the immediate sequel was a sudden and furious transformation—from the ignored spouse spoiling for attention to the very personification of "a woman scorned;" she would dart with apparently murderous intent at the unresponsive drake, putting him to flight that looked not to the order of his going; yet, no sooner would he come to rest than she would be again at hand, floating invitingly — the all-loving spouse again — outdoing if possible her former abject appeal. Sooner or later — usually sooner than in instances like that above described — the drake complies.

The male sometimes assumes a pose similar to that of the half submerged female. This *may* be, in his case also, a specific advertisement of desire; but it seemed random, was not one of the definite series of mating acts. There is no attitude or act of the drake coinciding with that prolonged period of the female. Any interest he may feel at that time is certainly well disguised. It is only fair justice to the spectacle itself to record the strangeness of seeing him drifting or slowly swimming in the most every-day posture and manner imag-

inable while the female drifts, with the fine art of apparent chance, within near contact; often he swims slowly away to avoid her.

The first positive indication of his desire is apt to be a peculiar and animated twitching of the water with his bill (Fig. 1, Plate 3); then he is apt to stretch, turning on his side and extending the upper wing and leg — in this he is quite deliberate; pluming of the back feathers follows and looks like a gesture of ostentation. All this has taken but a minute or so (unless the water twitching has been more prolonged than usual); then the upright position (Fig. 13 in Plate 3) is assumed, which marks the beginning of the spurt to the female; the birds are usually within a yard of each other when the spurt begins. The next steps are illustrated in sequence (Plate 3, Figs. 14-17 for the male, 9-12 the correlated attitudes of the female). It should be understood that the plate shows an entirely arbitrary and unreal separation of the pair in the latter's three last stages of action.

Scarcely a minute is consumed in the entire specific act. While finally, *in coitu*, they begin to swim in a very small circle a note is repeated at regular intervals of about a second; I wrote it, "Gr-err'-er" or "cr-err'-er," and it seemed to come from the female, yet the latter point is in doubt. The middle syllable, high and accented, seems jerked forth, Another note (I thought from the drake) is a low cluck; these two notes were timed with each other so that one appeared an echo. As I reflect about it now, there seems a possibility that both calls came from the same individual. Having circled, as mentioned, two or three times around, the pair separates, each bird swimming away instantly from the spot; dabbling and vigorous bathing begins at a distance of some forty feet on the part of the female, rather farther in the case of the male. The male's appearance in this swimming away is noteworthy (Fig. 18 in Plate 3). He has an extremely self-conscious bearing; in the live bird the effect is enhanced to a ludicrous extent by the regular ticktock movement of the bill from side to side. The set pose, the straight course with uniform speed, the mechanical movement of the head — all give every appearance of an automaton, personifying egotism and wound up to run a set course.

In the matter of these mating operations I wish to emphasize their uniformity as regards sequence, time consumed, and the manner in which each step itself is performed. To me it was surprising that so many little mannerisms and actions apparently unessential and with no survival value had yet become thoroughly standardized and correlated with their respective stages in the performance. How, for example, can we explain the remarkable "proud" swim, so uniform in

every remarkable detail, of the male; this especially, since it follows complete consummation of the mating? May it indicate a period of distinctly significant breath-regaining or strength-regaining?

Notes and Calls

A nasal twanging note or quack by the male accompanies attitudinizing during rivalry. It is that note which, possibly with others in the same category, often becomes a small babel as other drakes compete with it. There is also a low quack by the drake as he swims with head high and slightly forward (Fig. 8, Plate 2).

The female's "desire" note is a low cluck, fast and regularly repeated while with lowered head she drifts about the male(as in Plate 2, Fig. 20). The female's "gr-err'-er" or "cr-err'-er" call, more fully described under mating, is also uttered when she is simply *near* the drake; the last stage of mating is always accompanied by this note.

From a male and female together in flight above me I heard a repeated low short quack, slightly suggesting a Black Duck or a Mallard.

The drake often or usually gives a continued short quack in throwing the head back and while in the attitude which ensues (see Plate 2, Fig. 11). Quoting my field notes, "The usual note (apparently male, but possibly female or both) is a sort of quack with a decided nasal, metallic twang; sounds exactly like an amateur first trying a patent duck-call."

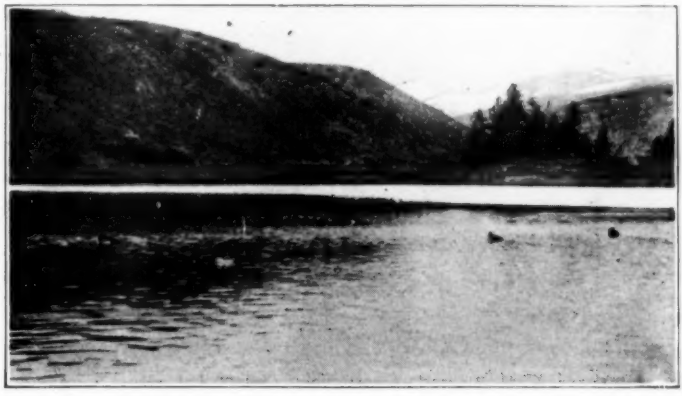
Both males and females did a good deal of what appeared to be, and may have been, sneezing.

If I may extend the period in question, I can add that a female, disturbed in her incubating, began a quacking when she had gotten clear of the nesting stub and was in flight to a nearby pond.

An Exceptional Case

To the rivalry and mating actions as described above there remains to be added a unique and notable case. Obviously this is not to be considered as qualifying the standardized behavior of mature and normal birds; rather, it is an aside from the latter subject. On May 1 I noticed an individual that was strikingly "off color." As to explanation of the plumage, I will leave the point for others to determine who have access to the proper series of skins. Under other circumstances of time and place one's first thought would be of simply a seasonal or developmental phase of color; but, with every other member of the flock (as well as all individuals seen elsewhere at this time) in full breeding plumage, it struck me that this odd garb might indicate a case of sexual abnormality. That the bird shared the mat-

ing impulse was beyond question; it was equally evident from his technique that this impulse was not typical and normal — his action was always premature and invariably abortive. Many times I saw the bird attempt to consummate a mating, but in every instance the female spurned him and avoided contact, sometimes also chasing him in resentment of his ill-timed advances. There was a striking contrast between the orderly and standardized procedure of all the other drakes, with relation to their mates, and the unco-ordinated rushes of the off color individual; for the latter's charges would always begin at a distance of some dozen to twenty-five or thirty feet from the intended mate, instead of the customary yard or less; nor were they preceded by the dabbling, stretching and preening so characteristic in other drakes. On May 13 this bird was still on Ice Lake.



Ice Lake. Looking north from the blind with several Barrow's Golden-eyes in the water.

My field notes describing the individual in question are as follows: "Head somewhat less crested than typical male, more crested than typical female; white on lores somewhat restricted, rest of head dark sepia with violet-purple gloss; sides and flanks like female, dark; breast, violet-gray; belly, white; upper parts, wings, tail, dark grayish or grayish-brown; feet dull flesh or dull orange, clouded with grayish; ring around neck white. Altogether, coloring and marking intermediate between typical male and female." Bear in mind that the description just given may be inexact in many details; but, for each part described, the *effect* produced by the live bird (for the specimen was not taken) was as stated, seen at close range.

Wild Life Associations

The golden-eye was merely one of the various wild life attractions on and about Ice Lake. Mallards were always present (usually several pairs), Green-winged Teals were usually represented by a few pairs or a small flock, now and then there were a few Widgeons and Shovellers; Pintails, in small numbers, were frequent visitors; occasionally there was a small flock of Ruddy Ducks. American Mergansers, never more than a very few at a time, would come in to try the fishing — successfully, too. A pair of Canada Geese occasionally would rise honking as I came close to the lake, to return and alight out near the middle soon after I had disappeared in the blind; they might then slowly swim ashore where the gander (presumably) would stand guard with watchful head raised high while the mate walked about, feeding. An Osprey, probably from the nest on famous misnamed "Eagle Nest Rock" a mile away, was a very frequent caller. A Kingfisher used one of my bough tent-supports for his lookout.

A few beavers, from a lodge two hundred feet from the blind, were in the daily habit of passing to and fro fifteen or twenty feet from me. Deer passed within sight of my peep-hole and once a lank coyote snooped by, skirting the opposite shore. Muskrats were abundant, instructive and entertaining. That is to list only some of the notables among those present.

Mountain Song Sparrows, Yellow Warblers, Western Robins and Mountain Bluebirds were nesting in the shore thickets or nearby pines. Within one hundred feet of the lake I collected for the Yellowstone Park Museum in due time one set each of eggs of Mallard, Thick-billed Red-winged Blackbird, and Mountain Song Sparrow. Cassin's Purple Finches were nesting a hundred yards from the east shore. Hence it will be understood that even an eight-hour day in the blind seemed all too short even though during the hasty lunch one's eyes could still look continuously from the peep-hole. There was never a dull or idle moment. If a lull occurred in the golden-eyes' affairs, there was always something, if no more than a muskrat or two, to be picked up by sweeping the shoreline with the glass; very often it was not necessary to look so far for the rats; they were fond of landing right in front of the blind and nosing about in the scant leavings from my lunch.

I think no allowance whatsoever need be made for any influence on the golden-eyes' behavior, as recorded in these notes, by the other more or less associated forms of wild life. The only species calling for remark in this connection are the various other ducks, the beavers

and the muskrats. As for the ducks, the other species simply did not mingle with the golden-eyes; each species kept by itself or, at times, mingled more or less casually with its more closely related species, as Mallards with the Teal and Shovellers. When the golden-eyes were spread about the lake all species were of course rather generally intermingled; still, in the matter of any inter-relations, the golden-eyes were simply "out of it"— a species apart; where the flock had drawn together in any of its "courting bees" other species never mingled or interfered. Beavers and muskrats were in a single category; either species could pass as if unnoticed unless the distance were less than fifteen or twenty feet; otherwise, the duck would swim rather deliberately out of the way a couple of yards or so. Even when the beaver or rat was coming swiftly and directly toward the duck, the latter seemed to regard the oncoming animal as little more than simply a small moving object with which impact was to be avoided.

YELLOWSTONE PARK, WYOMING.

SOME IMPRESSIONS OF THE COMMONER WINTER BIRDS OF SOUTHERN ARIZONA

BY MYRON H. AND JANE BISHOP SWENK

Southern Arizona has much to offer to the ornithologist and bird lover of the northern United States by way of a decided contrast in the character of its bird life. It was our privilege to spend the winter of 1926-27 (October 19 to April 27) in this interesting region; and we have since thought it might be interesting to others if we briefly described how two Nebraskans, familiar enough with the birds of the North, but making their initial acquaintance with the commoner winter birds of this Lower Sonoran or semi-tropical country, were impressed by them.

Our stay was at the historic and flourishing city of Tucson, which lies picturesquely in the approximate center of Pima County, on a level plateau of about 2,400 feet elevation that is thinly clothed with vegetation of the verdant desert type—i. e., various cacti, scrubby mesquite, creosote bushes, etc.—and is practically surrounded by imposing and eternally varyingly hued mountain ranges, some of which attain an elevation of 10,000 feet and support a Transition fauna. We found the weather during our stay to be generally very pleasantly bright and dry, except for a period of about three weeks in December when there seemed to us to be a good deal of cloudy and showery weather for a desert country. The days were nearly all warm, but the night

temperatures from early November to March not infrequently dropped to freezing or a little below. No effort whatever was made by us to search out the rarer winter birds of the region; in fact, practically all of our observations were made incidentally right in the city of Tucson or on short hikes in its immediate environs, including, however, longer trips to Sabino Canyon at the base of the Santa Catalina Mountains to the north, to the base of the Tucson Mountains to the west, and to the Mexican boundary to the south. The birds here mentioned were all seen by both of us, but the records of bird songs have been excerpted wholly from the note book of the junior author.

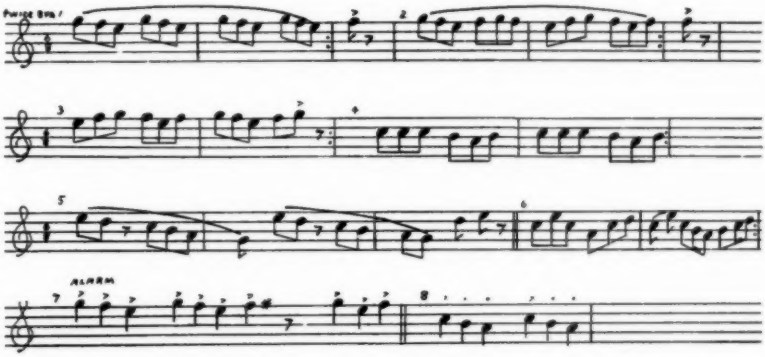
Without a doubt the most abundant bird in Tucson and its environs was the handsomely reddish-purple-splashed male House Finch (*Carpodacus mexicanus frontalis*) and his grayish, brown-streaked mate. These birds were as common there as the English Sparrow is with us in Nebraska; and that gamin itself was of course not absent in Arizona either, but it seemed to us less prosperous in the face of real competition put up by the House Finch. We were not, of course, wholly unacquainted with the House Finch, having previously met with it in Colorado and southern California, but we had never before been privileged to enjoy an intimate association with it for months.

When we arrived at our home for the winter, on October 20, these finches were plentiful and conspicuous everywhere about the house. About 6:20 each morning they began to twitter in their sleeping places in the woodbine vines just outside of our east window. By 7 o'clock they were in full song, and from then on they continued singing lustily all the morning, especially around 10:00 A. M. when their songs were at the loudest. Early in November we noticed that they were gradually singing less frequently and less loudly; in fact, it seemed that their numbers about the house were becoming fewer. This period of diminished vocal effort extended from about November 5 to Christmas time. Toward the end of December the desultory songs became more frequent, and continued gradually to increase in frequency during January, so that by early February the birds were again singing as lustily as they were when we arrived in the preceding October. By the time nest building was started, early in March (we saw the first birds carrying nesting material on March 7), the singing of the males was at its height, and continued so through the remainder of our stay.

The House Finch is a joyous bird, and it expresses its joy in its rollicking, warbling song. The song itself is not long, but it is rapidly repeated many times, producing a long-continued flow of singing. The

song has many variations; in fact, but rarely do you hear two songs that are exactly alike. Different individuals will sing slightly differently, and the same bird will vary his song from time to time, but the song always has the same basic structure, is rather consistently given in 6/8 time, and all of the songs share the same general quality.

The first four of the following are typical or usual songs, as given when the finches resumed vigorous singing in February. The four sets of triplets would be repeated many times, sometimes very fast, usually finally ending in a single interrogatory note one or two tones higher than the last note of the final triplet, or else on the lowest tone of the triplets, as if to finish the song completely. The fifth song was that of a highly-colored old male heard on February 26, and presented



a somewhat unusual form. The sixth song was that of a male that frequented our front porch at nesting time (March 7 on), and is rather more varied than the first four songs here given, expressing the over-jubilant mood the singer was in. No. 7 represents notes of alarm given by this bird on February 4 when a dog was prowling about in the yard close by. It was a series of strongly accented quarter notes. When we disturbed him he would sometimes give the call numbered 8 as he flew away. Often during March and April the birds sang while on the wing.

In town, about the houses, during April we found several House Finch nests in the trees and hedges, but out in the open desert all of the nests that we found were concealed in the protecting arms of the cholla cactus. We found the first completed sets of eggs (two sets) on April 2, and young were commonly out of the nest by the end of that month.

Next to the House Finch, the most abundant winter sojourner about our place was the dainty Gambel's Sparrow (*Zonotrichia gam-*

beli), which occurred in small troops everywhere about town from early December until the end of April. We first noted two of these handsome birds in some low trees in one of the several city parks on the afternoon of November 6; and the first thing we heard, early the next morning, was the characteristic song of this species in our own back yard. There were four of them — three adults and one immature bird, the latter easily distinguishable by its chestnut and white instead of black and white crown — feeding on the ground. A feeding board, amply provisioned with rolled oats, was at once put up, and the birds quickly responded to this hospitality. Two adults came on November 11, and from then on more or less regularly through the remainder of the month, others joining the party from time to time until by December 1 several of them were visiting the feeding board regularly and enlivening the day for us with their pleasing singing. Several of our visitors by this time were immature birds. This troop remained at about constant numbers up to December 14, when further additions became noticeable, and Gambel's Sparrows were abundant everywhere. The maximum numbers were reached about the end of December, and remained unchanged through January, February and March. Then during April there was a gradual falling off, so that by the end of that month there were very few of the birds remaining anywhere in town.

Out of many individual crown sparrows closely examined through the glass, all that were seen clearly enough to definitely establish the point had the characteristic pale lores, with the superciliary stripe attaining the bill, of the Gambel's Sparrow; and not one had the black lores and interrupted superciliary of the White-crowned Sparrow (*Zonotrichia leucophrys*). This latter species, according to Swarth (A Distributional List of the Birds of Arizona, Pacific Coast Avifauna No. 10, p. 53), migrates commonly through Arizona, usually in company with the Gambel's Sparrow, but evidently winters farther south at this longitude, since there seems to be no authentic record of its wintering in Arizona, even in the southern part; while the Gambel's Sparrow is not only an abundant migrant throughout Arizona but winters commonly in the southern part of the state. Our winter singers among the crown sparrows were, therefore, undoubtedly all *Z. gambeli*.

The song of the Gambel's Sparrow, as heard during the winter period in Arizona, consisted typically of a long, clear, sweet, whistled, introductory note, usually on A but sometimes on C or D, usually followed by from one to six shorter, dreamy, plaintive notes, usually on D but sometimes on C, all at the same pitch and equally emphasized

except the terminal note, which was commonly rather blurred or double-toned in quality and a tone or a half tone higher or lower than the rest of the series of shorter notes. The variations were, of course, many, but the following sixteen excerpts from the singing of different birds that were heard from early January to early April are representative.

In January we frequently heard the single, whistled half note (1), or a quarter note followed by two eighth notes (2) or two quarter notes (3), while the longest songs consisted of only three (6 and 7) or four (8) notes following the initial quarter note. By March, while the songs of the shorter type (5 and 5) were still to be heard occasionally, most of the singing represented variations of the typical

twice 8va
oh oh che e oh che e oh che oh che oh che ta che oh che ta che
oh che ta che e oh che ta che e oh che ta che e oh che ta che e oh che ta che e
oh che ta ta che e oh che ta ta ta che e oh che ta ta che e che ta che e

whole song "*oh, chee-ta che-e*" (8, 9, 10, 11 and 12). By the end of March (28th) or early in April (1st) songs with five or six shorter notes following the opening quarter note were dominant (13, 14, 15).

The singing of *Z. gambeli* is either different from that of the closely related *Z. leucophrys*, or else the songs of these birds are subject to considerable geographic variation. Though closely listened for, at no time did we hear the Sierra song of the White-crowned Sparrow, as described by Mrs. Florence Merriam Bailey (Handbook of Birds of the Western United States, p. 339), consisting of "two long whistled notes of rich and plaintive tone, the first sliding up to the second with grace notes, the second followed by a lower note repeated rapidly three times," viz., "*oh, oh, chee-chee-chee;*" nor (Wild Animals of Glacier National Park, p. 177) the Montana song of the same bird consisting of "four slow, clear notes followed by grace notes," viz., "*oh see the firs, see-see-see-see.*" This latter song we have heard approximated by migrating White-crowns in Nebraska in

May—a clear, plaintive, whistled "*oh, che, che, che, che-witty-witty*" consisting of a low, softly upwardly slurred introductory note, followed by three distinct, clear, highly pitched, whistled notes, the first of which is emphasized, and ending hurriedly with three burred descending notes, sometimes shortened to "*oh, che, che, wit-chee,*" in which the distinct, high, whistled notes are reduced to two, and the ending is abruptly descending, two-syllabled and rather harsh.

A bird that winters more or less commonly in the valleys of southern Arizona (Swarth, p. 56) is the attractively colored Desert Black-throated Sparrow (*Amphispiza bilineata deserticola*). We first noted this species in the desert on December 3, but at that time it was silent. On April 2, however, as soon as we entered the edge of the

desert north of Tucson we heard a new bird voice in the tinkling, canary-like song of this bird. Soon we saw several of them in the creosote bushes (*Covillea*), and had the opportunity of listening to several males in full, ecstatic song. The song was rapidly given and sustained, and frequently included triplets of what sounded like double-toned notes. The following is an effort to record the song of one of these birds. This sparrow was common in the desert about Tucson, but of course was never seen in the city itself.

Although the Green-backed Goldfinch (*Astragalinus psaltria hesperophilus*) is supposed to be a resident bird in the valleys of southern Arizona (Swarth, p. 51), we did not encounter it until in April. On April 8, while we were passing through the little city park in which

we had first noted the Gambel's Sparrow, we heard several repetitions of the following little song, that from its pronounced buzzing quality we thought must be that of the Pine Siskin, but that was yet not exactly the same.

We soon located the birds—a flock of about a dozen feeding on the ground under some trees in a perfectly typical Goldfinch manner. The

song was very high pitched, and entirely different from anything we have ever heard our common *A. tristis* utter in Nebraska, but very like the song of the Pine Siskin. After this first meeting with the Green-backed Goldfinch we frequently saw and heard them in little groups in different parts of town; they became, in fact, quite common before the close of April.

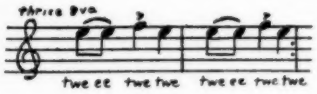
The Arizona Cardinal (*Cardinalis cardinalis superbus*) we found to be resident and common in the desert shrubbery environing Tucson, and we also occasionally glimpsed the related Arizona Pyrrhuloxia (*Pyrrhuloxia sinuata sinuata*). We first noted two individuals of this latter bird, a species new to us, in the desert north of Tucson on December 3, and last saw it twice between Tucson and Nogales on April 8. The Arizona Cardinal was more frequently noted, and on April 20 we had the pleasure of seeing a female sitting on its nest in a dense mesquite thicket southwest of town. Both of these birds seemed to us much shyer than our northern Cardinal is in Nebraska.

A familiar bird to us Nebraskans, albeit the males were in the unfamiliar streaky winter plumage, was the Lark Bunting (*Calamospiza melanocorys*). We saw a large flock of these birds on the desert north of Tucson on December 14. They were feeding in scattered longspur fashion on the ground and gave their characteristic call note as they flushed and flew away at our approach. Later in the day another smaller group was seen roosting in a clump of cholla cactus. From then on until early April they were present more or less commonly. The last two were seen on April 2.

Flocks of Red-winged Blackbirds (*Agelaius phoeniceus* subspp.?) were abundant in the city all winter. An especially large and noisy assemblage of them was discovered on November 14, roosting at night in the large palms on and near the University of Arizona campus, and from appearances they had been roosting there for some time before we found them. They foraged by day in the surrounding country. The flocks seemed to increase in size until about December 10, when they remained at about constant numbers until early in March. On February 27 we noted that a large number of Yellow-headed Blackbirds (*Xanthocephalus xanthocephalus*) had joined the flock, and were contributing their guttural calls to the confusedly liquid Red-wing chorus. A Dwarf Cowbird (*Molothrus ater obscurus*) found dead under a palm tree in the city on October 22 was the only contact we had with this bird, which apparently winters but rarely in the Tucson region (vide Swarth, p. 47). The only Western Meadowlark (*Sturnella neglecta*) that we saw all winter was a lone bird on December

19, near the eastern edge of town. We saw an oriole at a distance on April 8, south of Tucson, that we took to be the Bullock's Oriole (*Icterus bullocki*), but otherwise we did not encounter any orioles. Judging from the commonness of oriole nests in the tall cottonwoods and other trees in the city, however, this species must be common there, later in the season.

The only warbler that we saw all winter was the pretty little Audubon's Warbler (*Dendroica auduboni auduboni*), but that species was abundant everywhere, both in the trees of the city and in the shrubbery of the desert. Along in November we began to hear the very sharp and short "*twit*" calls of this species in the trees about us, and from early December on until mid-April when out-of-doors one was scarcely ever out of the hearing of it. On the morning of November 22 we picked up an immature female of this species in our yard, it evidently having been killed during the night by striking a wire.



Toward spring, and especially in April, the very high-pitched, thin, fine song of the species could be heard almost whenever listened for. The song has no carrying quality. It sounded to us much like "*twe-ee twe twe,*" repeated again and again with little variation.

The White-rumped Shrike (*Lanius ludovicianus excubitorides*) was a common bird, in and around Tucson, all winter. A pair of them made frequent visits to our back yard, of a morning in the early winter, where they were wont to perch, one on each radio pole, and call their "*kee-kee-e-e,*" shrilly to each other for minutes at a time. One or both of them were particularly noted doing this on November 4, 9, 19 and 21 and December 19; but after that they came no more. Along the valley roads in the spring this shrike was, next to the Desert Sparrow Hawk, the most abundant species of bird, exceeding slightly in numbers even the abundant and omnipresent Arkansas Kingbird.

We had hoped to see more of that odd bird, the Phainopepla (*Phainopepla nitens*), than we did. It apparently did not winter about Tucson, at least not commonly, and the first and only individual seen by us was one flying over the desert southwest of town on April 20. On March 6 we had the pleasure of renewing acquaintance, under strange surroundings, with our familiar friend the Cedar Waxwing (*Bombycilla cedrorum*). A flock of a dozen or more of them was seen right in town along an arbor vitae hedge and in the trees above.

This bird is recorded as of rare and irregular occurrence in Arizona (Swarth, p. 64), though it has previously repeatedly been observed at Tucson, from March to June. Another old friend, of more regular occurrence in winter in the Tucson region (Swarth, p. 81), that we encountered there, was the Mountain Bluebird (*Sialia currucoides*). On December 14 we saw an open flock of about a dozen of these beautiful birds on the desert north of town, and on December 31 we saw a lone individual in the same locality. On both December 3 and 14 we saw several Western Gnatcatchers (*Polioptila caerulea obscura*) in the creosote bushes on the desert north of Tucson, but we did not again encounter them later in the winter, though they are known to winter in the vicinity (Swarth, p. 78).

On our first trip into the open creosote bush and cholla cactus covered desert north of Tucson, on November 21, one of the first birds we encountered was a medium-sized, long-tailed, plain grayish brown bird, with a long, slightly curved bill, that flew up from the ground with the loud "*ter ter it*" *call*, and flew to a cholla cactus ahead. Immediately we knew we were having our first sight of the Palmer Thrasher (*Toxostoma curvirostre palmeri*). Soon another one was seen, and on every subsequent trip to the desert we encountered several of these birds; in fact, they proved to be one of the commonest species of the open desert. Early in March (5th) we noted that they were nesting, their bulky nests being conspicuous objects in the cholla cactus, upon the formidable spiny armature of which the birds evidently relied for the protection of their nests. At this time they had a loud, distinctly thrasheresque song. On April 2 fully fledged young were found, one unwary young individual nearly permitting itself to be picked up by hand.

The Western Mockingbird (*Mimus polyglottos leucopterus*) was not noted until early in April, and we believe it winters but sparsely in the Tucson region. On April 8, south of Tucson, it was very common, being outnumbered only by the Desert Sparrow Hawk, White-rumped Shrike, Arkansas Kingbird and Western Mourning Dove. By April 20 these birds were in full song everywhere.

Three wrens winter in the Tucson region — the Cactus Wren (*Heleodytes brunneicapillus couesi*), the Rock Wren (*Salpinctes obsoletus obsoletus*) and the Canyon Wren (*Catherpes mexicanus conspersus*)—in our experience decreasingly commonly in the order given. All are permanent residents there. We made our first acquaintance

with the big (for a wren), spotted-breasted, skulking Cactus Wren among the cholla cactus on the desert north of town on December 3, and thereafter at intervals met with it again in the same situations. Later we became acquainted with the bulky, globular nests of this species, protected, like those of the Palmer Thrasher, by the excessively spiny branches of the chollas, in which those nests that we saw were all placed. They had reared a brood of young by April 20. The Rock Wren we knew as an old friend, it being common in proper situations in extreme western Nebraska. We saw our first ones—a pair in a rocky gully—near Sabino Canyon on December 19, and later found them to be common in the rocky hills.

On the morning of October 24 we were attracted by a plaintive familiar call, and, stepping outside, we saw a pair of the Say's Phoebe (*Sayornis sayus*), one perched on the roof and the other on the telephone wire in front of the house. After a time they flew away. From this time on, one or both of what we assumed were the same birds appeared at irregular intervals around the house during the winter—on November 23 (two), December 3 (one), December 14 (two), December 19 (one), January 19 (one), January 23 (one) and February 4 (one)—thus indicating that the species remains through the winter in the vicinity of Tucson. Others were seen in the desert. During March and April these birds became much more common, and "our" pair settled down to build its home under the front porch of a house about a block away. By April 14 there were young in this nest.

The Arkansas Kingbird (*Tyrannus verticalis*) was, of course, absent during the winter in the Tucson region, but it returned early in April. We saw the first ones on April 2, in our favorite little park, loudly calling "*che-burr, che-burr*" from the tree tops in decided Kingbird fashion. The call sounded as if the birds put so much emphasis on the "*burr*" that they had to stop abruptly to take in a breath after each call. Within a week the roadsides of the whole region roundabout were abundantly supplied with these birds, so that only the Desert Sparrow Hawks and White-rumped Shrikes could be counted as

more numerous in such situations, and from then on to the end of our stay their varied, chattering "*kaw-kaw-deer*" notes were to be heard everywhere, both in the town and in the open country. Aside from this and the preceding species, the only flycatcher that was seen by us was one we somewhat doubtfully identified as the Ash-throated Flycatcher (*Myiarchus cinerascens*), seen April 8 between Tucson and Nogales.

The Raven (*Corvus corax sinuatus*), though a resident bird (Swarth, p. 46) was seen by us only once—two of them along the road between Tucson and Nogales, opposite the Santa Rita Mountains. The Roadrunner (*Geococcyx californicus*), that odd ground-living cuckoo, is also resident, and was apparently more common, several of them being seen by us. Of hummingbirds we saw only one species—the Costa Hummingbird (*Calypte costae*)—but after the apricot trees in our yard came into bloom these were seen commonly about the blossoms, and on April 16 we had the pleasure of seeing a beautiful newly completed nest of this species in a vine growing over the doorway of an occupied house in the city. The Desert Quail (*Lophortyx gambeli*) we found to be common in the desert, and it furnished a good deal of sport to the local gunners in the fall. It was inclined in the spring to run ahead in the road, like our Bob-white used to do in eastern Nebraska twenty-five or thirty years ago, before it became virtually extirpated here, and its call was strongly suggestive of that of our northern bird.

There is one Arizona bird that is strictly a bird of the towns—the little Inca Dove (*Scardafella inca*). According to Swarth (p. 24) it is exceedingly local in its distribution. It was very common in Tucson, but we never saw it on the desert. On April 8, going from Tucson to Nogales and return, a distance of fifty-odd miles, we did not see a single Inca Dove between the two places, though they were common enough in each. On the other hand, the Western Mourning Dove (*Zenaidura macroura marginella*), so common in the towns of the North, was not seen by us in Tucson, but was common around the little outlying settlements. We encountered the Inca Dove almost at once on our arrival at Tucson, there being small flocks dispersed all over the city. Several of them habitually visited our back yard. Some were seen all through the winter, for the species is resident, though it seemed to us that there were more of them about in October and November, and again in March and April, than in December, January and February. This is a small, "scaly backed" species with a long, white-edged tail, and shows conspicuous reddish brown coloration in

the wings when it is in flight, suggestive of that shown in the Yellow-billed Cuckoo's wings. These little doves are very tame and can be approached to within a few feet. The call of the Inca Dove is a monotonous, unvaried, rather hard yet plaintive "*coo-oo-coo*" or "*who-oo-who*" (1), rapidly repeated over and over. There is a blowing quality in it. We heard this call all through the winter, but it became louder and more insistent as the nesting season approached in March and April. It is very different from the soft, drawled "*coo-oo-coo, coo, coo, coo*" (2) of the Mourning Dove. We noted the latter first near San Xavier Mission, south of Tucson, on December 26—a flock of twelve or fifteen—and again in greatly increased numbers on different occasions in April.

The commonest woodpecker seen during the early part of the winter in the cottonwood, poplar and other deciduous trees in the town was the Cactus Woodpecker (*Dryobates scalaris cactophilus*), a species of about the size of the Downy Woodpecker of the eastern United States, and of similar general habits and voice, but with the back crossbarred black and white. We saw and heard the first one on November 18, then another (a male) on the 24th, the next one on December 4 and again one on December 24 (a female). Although the species is recorded as resident, we did not see any after Christmas day. In the same tree with the male seen on November 24, and conversing spiritedly with it, was a male Red-naped Sapsucker (*Sphyrapicus varius nuchalis*), the only one seen during the entire winter. The commonest woodpeckers of the locality were the Gila Woodpecker (*Centurus uropygialis*) and the Mearns's Gilded Flicker (*Colaptes chrysoides mearnsi*), both of which are resident and were encountered from December to April whenever we entered areas in which the giant cactus or saguaro occurred numerously. They both nest in holes that they dig in this remarkable plant, which takes the place of trees in the desert, and we did not see them elsewhere. The Gila Woodpecker reminded us very much of our Red-bellied Woodpecker, but had less red on the crown in the male, and none in the female, and the wash on the under parts was yellowish rather than reddish. Its loud "*charr-r*" call notes and general behavior, however, reminded us more

of our Red-headed Woodpecker. The Mearns's Gilded Flicker looked and acted much like our common Northern Flicker, but that the red nuchal crescent was lacking and the malar stripe of the male was red, as in the Red-shafted Flicker, instead of black. Both of these woodpeckers were especially common about the Carnegie Desert Laboratory in April.

Two small birds of prey profit by the numerous woodpecker excavations in the giant cactus, in that these supply them with nesting sites. These are the Elf Owl (*Micropallas whitneyi*) and the Desert Sparrow Hawk (*Cerchneis sparverius phalaena*). We have no real idea how common this tiny owl may be in the saguaros, but on one occasion we found one sitting in the opening of its burrow, calmly blinking down at us, and allowing itself not only to be photographed at very short range with a small pocket camera, but afterward to be dragged out of its retreat. The Desert Sparow Hawk, is certainly *very* abundant everywhere. A pair of them visited the radio poles on our house on three occasions during November (18th, 21st and 25th), thus emulating the White-rumped Shrikes. In the spring, during April, they were easily the most numerous bird along the roadsides and among the giant cacti, where they nested. Aside from the Desert Sparrow Hawk, the bird of prey most in evidence was the Turkey Vulture (*Cathartes aura septentrionalis*), which during the late winter and spring was quite plentiful. On one day we saw over a dozen of them. The Marsh Hawk (*Circus hudsonius*) was also seen in small numbers in April.

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ARE BIRDS DECREASING IN NUMBERS?

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In replying to a query regarding the decrease of birds in recent years a careful observer would be quite apt to say that many species are decreasing in numbers, while a few are increasing. Such would be my answer, based on memory impressions, as well as on daily written records. Within the past three years friends have signified their recognition of a keenly felt loss of certain birds, formerly common or abundant, speaking somewhat in this wise: "We seem to have lost our Bobolinks. In this entire summer I have seen a Bobolink only two or three times." While another asks, "Tell us what has become of the Bobolinks, Kingbirds, and Bluebirds? We used to see many of them by the roadside, but now they are seldom met." Such

remarks have been made by elderly men, living in the counties of Winneshiek, Allamakee, and Clayton, which occupy the northeastern corner of Iowa. They are men who have known the fields and highways of the region for seventy years or thereabout. One object of this paper is to substantiate these impressions with figures taken from written records, kept daily, based on intensive observations, covering a score of years, and made on the same acres, whose natural conditions have changed very little in that period.

During the twenty years under consideration the changes in natural conditions, which have materially affected our bird population, pale before the magnitude of the changes that preceded them. Of these it may be permitted to speak briefly. To Farmersburg Township, Clayton County, Iowa, my parents came upward of eighty-two years ago, in May of 1845. Three, possibly four, homes preceded theirs, but these were built in the shelter of the woods, whereas they located on the treeless, trackless prairie wilderness, whose wide expanse of wild grass was unbroken by any object. The memories of their older children reach back seventy-five years, but mine for only seventy years or a trifle less, when many changes already had occurred. The Wild Turkey, so abundant on the wooded banks of rivers, had been exterminated before that day. Prairie Chickens were still numerous, as were some other ground nesting species. The hosts of Passenger Pigeons still passed in migration, while as late as 1865 the honking of wild geese, flying northward, caused sleepless nights for a young man, recently arrived from the East. To have kept for sixty years a record of the coming and rate of increase of bird species would have been a most desirable achievement. Instead of that I was sent from home to school in 1869, and for the next twenty-six years was absent except for brief intervals. For a few years after residence in the family home was resumed other duties claimed my attention.

The spot where my bird studies have been conducted became the family home in 1866. It was situated on the southern edge of a small, frontier village, that the coming railroads did not approach, consequently it shared the fate of many another hamlet similarly situated. Our home dooryard contains about an acre of land. The changes it has undergone in sixty-one years are characteristic of many prairie localities and have close connection with the bird species displaced and those attracted to it. The first change on grass covered prairie soil, which held no attraction except for ground nesting birds, was the building of house and barn. The barn has provided nest

sites for seven species of birds. The next change came with the growth of trees, shrubbery, and berry bushes; the last, important change has been due to lack of pruning and to riotous thickets for the planting of which the birds brought the seeds. The elderberry is the most attractive of these and its bushels of berries find favor in the sight of fall migrants. Drawn by bird planted bushes there have come within the past half dozen years to nest the Traill's Flycatcher, Indigo Bunting, Cedar Waxwing and Yellow Warbler. Of the forty species of birds, known to have nested on our premises within twenty-two years, thirty-six of them have nested within the limits of the dooryard. Probably thirteen instead of forty would have numbered the breeding species had the land remained in its original wild state.

The duration of the period whose figures are here discussed is from 1907 to 1927, inclusive, which makes twenty-one years, but I was absent the whole of 1914 to the middle of September, therefore no account is made of that year. There have been other long absences, but these occurred late in the fall months, mainly after migration had ended, or in the winter. There have been short breaks in the summer records, which have not seriously affected the general averages.

A daily record of the birds seen or heard has been kept throughout the year. From about November 12 to nearly the same date in March rarely are other than resident birds to be seen. These are seen from the windows. For the remaining 245 days of the year to window observations is added the list of birds found on a walk over our own acres and along the highway for a distance of a half mile or more, occasionally less. On this walk approximately a hundred acres can be viewed with binoculars for the identification of the larger species and the smaller ones near at hand. The time given to this counting of species would average two hours a day for the greater part of eight months. Shorter hours are offset by the time given on days, when nearly the entire time is devoted to watching the migrating hosts. Since 1905 there have been identified on or from our land 162 species of birds. The largest number in one day was 52. Out of this total of 162 species the annual lists show that from 92 to 109 species are recognized yearly. The records for thirteen years of nearly unbroken observations give an annual average of 103 species, while the average for the past three years is 94 species only.

Even more deplorable than this decrease of species shown by the annual totals are the showings made by the median number of bird species daily present in the three months of June, July, and August,

when the lists consist chiefly of breeding birds. The daily average for these three months in the four year periods 1909 to 1912, and 1917 to 1920 was 21 for each, but for the four years 1924 to 1927 inclusive, it was 17. In 1921 for June and July only it was 25 species; for the same months in 1927 the daily average shrank to 16 species. It should be noted here that the decrease of nine species in the breeding months names the same number shown in annual totals, when 94 species instead of 103 is the average. Any bird student, keeping records of this sort, ought to be able to answer, "It is death," to the question, "What has happened to our Kingbirds, Bobolinks, and Bluebirds?" and confidently add that equally with these have the Chipping Sparrows suffered; that beyond our ken have passed a large proportion of the Bob-whites, Prairie Horned Larks, Baltimore Orioles, Vesper Sparrows, Cliff Swallows, Barn Swallows, Warbling Vireos, Maryland Yellow-throats, and Short-billed Marsh Wrens, which until very recent years helped to make longer these daily lists. All are not yet extinct. To restore *some of them* to their former numbers is still possible, if mankind is willing and will act.

The next step will be to outline the status of certain species of the listed birds. In the fall of 1907 I built a rude blind for shelter, while observing rails and other marsh birds in a wet ravine about a hundred yards from our house. For a few years there had been a radical change in the occupant uses to which this bit of marshy land was put, also there had been a succession of wet seasons. Due to these two causes the rails flourished in that spot. King Rails were seen on a few days, Virginia Rails were listed on fifty days of 1907 and the following year, and the Sora Rail on ninety-five days. In the spring of 1909 the King and the Virginia Rails were seen only a few times, but the Sora stayed and nested. It is believed that at least two pairs had nests. Our state geologists tell us that the water level in Iowa has fallen fifteen feet in the past fifty years. Springs have dried up that formerly had fine flows of water. This happened to the marshy ravine that was the haunts of the rails. In succeeding years a few of them were seen, but in the past six years only the Sora has been listed, and it on only two occasions.

Numerically the Solitary Sandpiper does not seem to have suffered. Far different has been the fate of Wilson's Snipe. Formerly in migration it was seen in flocks, numbering from six to fifteen birds, on a dozen to twenty days of the year. Gradually its numbers fell to one or two individuals, until in the last two years not one was seen. The Upland Plover, formerly an abundant breeding species, is with

us no more. A pair here in the summer of 1917 probably was nesting. Owing to crop rotations the Killdeer must change its location yearly, making it difficult to estimate its numbers, however, they do not seem to be greatly reduced in twenty years. In this neighborhood a few Prairie Chickens still survive, but now so far from our home that no longer can their booming be heard in spring. It is three years since the last one was listed.

Fortunately, most fortunately, our county's population is largely rural. Its villages are few and small; its largest one numbering less than 1700 inhabitants. This means that the county is quite free from that urban creature, who calls himself "a sportsman," whose pleasure it is to go forth with a gun and shoot such beautiful, beneficient creatures as the Bob-white. Twenty years ago it was a common bird, heard calling daily in summer, sometimes three or four cocks calling at once. For ten years its numbers held fairly well, then came winters of severe cold and drifting snow, after which Bob-white became very scarce. In the summer of 1918 it was heard only twice. Since then a slight increase in its numbers has been detected.

The so-called sportsman is absent, and I have yet to hear of farmers in this neighborhood shooting Bob-whites, but I have seen some of them show deep concern over injuries done to nesting birds by their plows and mowing machines. It is these implements that have worked destruction; these and the life-sustaining cow. If long ago everyone had become a vegetarian, leaving no one to demand veal, beef, pork, and mutton; if chemists had placed on the market synthetic butter, milk, cheese, and ice cream the ground nesting birds would not have fared so badly.

The pasturing herds have been inimical to our wild flowers as well as to our birds. Long, long ago there perished a flower of transcendent loveliness; it was gone before we learned so much as its name. But the beauty of other flowers still glowed on all the hilltops. These in turn vanished. In the tame grass now covering the hillsides may be seen numerous flowering plants, but the plants are ragweed, thistles, and dock. Last year the man, employed to cut roadside weeds, slashed down every evening primrose, jewel-weed, and aster, and left standing every burdock, thistle, and nettle, that I passed on my daily walk.

The early settlers of this region planted deciduous trees about their homes. About forty years ago the general practice of planting evergreen trees for wind-breaks began. Their growth has marked a great increase among the Bronzed Grackles. Before that the King-

birds were numerous. They seem to hold well their own against all birds except the grackle. It and the rare activities of some keeper of bees are the only known causes for the great decrease of the Kingbirds.

Along with the Kingbirds some years ago the Bobolinks held a constant place on the daily bird lists. Both species were marked present for seven days in the week and thirty days in the month until their summer season was over. Fifteen years ago while visiting a cousin on his ranch in California he remarked to me, "I don't know what I'd give to hear again the Bobolinks singing on the old farm in Iowa." Some of his friends have said that his income is a million dollars a year. This he declares is exaggeration. Whatever the figure may be, it has not been lack of the price of railroad fare that hindered his return in the months when the Bobolinks sing. Unless he comes quickly all the millions of the entire globe can not procure for him in this locality one hour of the music of the Bobolink. Even now the absence of its song makes the world seem dreary and when a song is heard the occasion is marked for special recognition. In contrast with former summers, when a grand chorus of song was heard each day, in 1927 I heard a Bobolink sing on four days only. In August the count of individuals in flocks, moving southward, proved that some other localities are more fortunate. To the rice growers on the Atlantic sea-board must be referred those people asking, "What has become of our Bobolinks?"

In 1907 the Red-winged Blackbird was the most abundant breeding species in our neighborhood. Seven of its nests were located on our premises with many more nearby. In the summer just past not seven pairs of these birds were seen on all the acres under my observations. Many dry summers in which farmers could mow the grass on low ground seem to explain the loss among redwings. A similar decline has attended the Meadowlarks. Here both the eastern form and its western cousin are breeding species. Formerly both the Red-winged Blackbird and the Meadowlark could be listed daily, now there is many a break in their records.

For the marked falling off in the numbers of the Baltimore Oriole thanks are due to the Screech Owl. In 1924 a pair nested in one of our maple trees and came daily to the feeding-stick for food. A most enjoyable sight and a brilliant combination of colors were afforded by a Red-headed Woodpecker together with both of the Orioles feeding on the stick at the same time. Later, after the mother Oriole was taken the father strove bravely to feed the three nestlings, but all fell victims to the foe.

Twenty-two of our native sparrow species have visited our home place. While speaking of sparrows let it be said that the English Sparrow has never been listed here, never counted among the birds, it is accounted a pest only, and is with us always. The numbers of our native sparrows *seen* in each migration season depends very much on whether the brook beds are dry or hold water and on what crops the three years crop rotation, practiced by my farmer neighbors, has brought to the brooksides. Enough of these cycles have passed to confirm the opinion that the hosts of visiting sparrows are less than formerly. Among the breeding Fringillidae the status of the Goldfinch alone remains unchanged. The Vesper Sparrow has appreciably decreased. The Dickcissel is always a variable summer resident, sometimes here, sometimes absent. Year after year the spacing of nesting Song Sparrows was the same; six or seven locations were claimed. In 1927 only three of these were occupied. Formerly the Chipping Sparrow was one of the birds to be found constantly on the daily lists. It has not been learned if a foot disease, afflicting the species elsewhere, does so here. But it is known that the increase of its destructive arch-enemies, the Bronzed Grackle and the House Wren, is sufficient to explain its present scarcity.

Any one who has been called upon to write the obituary of a dear, young friend, a friend beautiful and graceful of form, whose coming was like the breath of spring, whose beneficent life blessed mankind and harmed him not, then that person knows full well the emotions felt by any of us when speaking of the swallows — the swallows that were the chief bird joys of our childhood, the Cliff Swallows that built their homes three deep under the eaves of the barns, and the Barn Swallows that built numerous nests within. Hundreds of swallows skimmed the air, where scarcely one can now be found. Last spring, like a token out of the blue, came a flock of Cliff Swallows to the home of a near neighbor. They built twenty-seven nests, almost all of which English Sparrows occupied at once.

In connection with other bird losses it seems fitting to recall the great catastrophe that befell the warblers in May of 1907. Not only warblers, but also vireos, and some of the flycatchers died from lack of food, accompanied by freezing weather. A large portion of our warblers' range was not affected. The area on which warblers suffered death is estimated as upward of one hundred million of acres. In our dooryard of an acre sixteen dead warblers were found. Using this as a basis for computation it has been said that millions of them perished. In the *Auk* for January, 1908, are two articles descriptive

of the calamity, and a short account of it appeared in *Bird-Lore* (September-October, 1915).

It was a bereavement for bird students to have the beautiful family of warblers come so near extinction. If one bewailed the loss, he was sure to be told, "Mourn not! Comfort yourself with the thought of the short time taken by the Bluebirds to replenish their numbers, when nearly annihilated!" Naturally one would deem twenty years sufficient for warbler restoration. In spring migrations before 1907 no attempts were made to count the individuals of the great swarms of warblers that halted in search for food. For sake of later comparisons this was most unfortunate. However, it was estimated that fully one hundred warblers have visited our trees on some days. Over against this reasonable estimate are placed the recorded figures for twenty years, taken on the very same grounds, which were fully as attractive for warblers as they were prior to 1907. It was believed that warblers were not increasing, when a chart of the figures was made it showed that the family was decreasing. Both spring and fall migrations are counted. Only in 1915 did the warbler numbers exceed the beggarly few which came in 1908, directly following the year of the great death. In the entire spring of 1918 the total of eight species, containing twenty-three individuals, was no more than could have been found in one hour of the old days.

Facts so astonishing, so contrary to expectations and experience, must have an explanation. Beyond doubt the facts known to be true on one acre are true of the millions of acres north of it. After the House Wrens became established here Maryland Yellow-throats were driven off. Not a warbler's nest had successful outcome until last summer, when the wrens having been reduced to a minimum and all Cowbird eggs having been removed from the nest a Yellow Warbler brought off a brood.

The Bluebird is one of the greatest sufferers from the evil nature of the House Wren. Not until about ten years ago were the effects from the intensive breeding of these wrens felt here. Once more the proof-telling figures show much. My daily records show that in certain past years I enjoyed the presence of this beautiful bird for such annual totals as 126 days, 132 days, 136 days, and 149 days. During all of last year (1926) I saw the Bluebird on four days only, and this year on eleven days. What does this mean? Nothing less than that I am being wronged, defrauded, cheated out of my rights to the pursuit of happiness by the maintainers of wren boxes to the north of me.

Among the birds here whose numbers have not changed appreciably of late may be named the Chimney Swift, Phoebe, Blue Jay, Crow, Cowbird, Brown Thrasher, Robin and five species of woodpeckers. I know of no family of birds capable of affording spectators so much entertainment as can the woodpeckers. The Flicker especially deserves a volume for his history. Although a model of fatherhood he is mated to a fickle female, far too often ready to desert him, leaving her nestlings to starve, while she goes off with another male. His trials are enough without the addition of a foreign foe.

The latter part of 1913 and until mid-August of the next year I spent in the Old World, seeing a little of twenty countries. From the first of June onward my itinerary was planned for seeing birds. The sight of a woodpecker was very rare, marking a red letter day on the bird lists, and there were but three of them. The first was in January, when a Golden-backed Woodpecker was seen in Delhi, India; the other two were in July in which a Lesser Spotted Woodpecker was seen in the environs of Honefos, Norway, and later a Green Woodpecker was seen in a public park of Stockholm, Sweden. This serious dearth of Old World woodpeckers lacked explanation until a few American ornithologists reported instances of Starlings driving Flickers from their holes and usurping the same. The unchecked spread of the Starling seems to repeat a tragedy, similar to the spreading of the English Sparrow with almost nothing being done to save our valuable native birds. Therefore it is gratifying to hear from one man in North America who is doing some of this protection. Mr. John B. Lewis of Lawrenceville, Virginia, has related his difficulties in protecting one Flicker's home. "In the last two years the Starlings have given me no little trouble. Last spring they would have taken possession of all the nest boxes and holes on the place, had I not made free use of a shot gun. More than twenty were killed in about two weeks, before they gave up and quit the premises. Seven were shot off one flicker house in three days."

In my restricted field of observation five bird species have been increasing. Three of them are among the most destructive and undesirable of our bird citizens. Favoring the increase of Screech Owls has been the advantages offered by many woodpecker holes and untenanted buildings, together with immunity from the shot gun. A close study of their habits brings the conclusion that the farther away are all Screech Owls the better it is for all desirable birds.

The coming in abundance of the Bronzed Grackle has been mentioned and the part it plays in the reduction of Kingbirds and Chipping Sparrows. The farmers like to see the grackle following the

plow, picking up the larvae of the May beetle, known as the white grub worm, which destroys their corn. But its good deeds do not seem to counter-balance its harm to other birds.

Among the many melancholy events in a bird history covering a score of years one delightful occurrence stands in bright relief. It was the coming of the Cardinal on its northward advance. Its first appearance in this area was in 1909, and its second visit came six years later. Since 1918 it has been a regular winter boarder, showing in spring a desire to stay for nesting, but is driven off by the Brown Thrashers.

Not so welcome has been the increase of Catbirds. They were plentiful enough before their ranks were augmented. Desirable bushes in which to build nests and an abundant food supply have attracted them. Their gluttony for berries surpasses that of other birds. However great the supply of berries, none is left for us except those under covers, protecting them from Catbirds, Brown Thrashers and Robins.

Here House Wrens have increased immensely in twenty years. Nothing less could be expected, when across the entire continent school children are urged to build and put in place boxes for wrens. A fad or fashion has been started more deadly to many birds than the fashion of wearing bird feathers on women's hats. The disaster following that fashion was not so much the fault of ignorant women as it was of market hunters who killed birds for gain. The disaster following the wren house craze is not the fault of innocent children, but is the criminal fault of those fostering for gain the business of wren house making. They include various classes of teachers and leaders who are selling the birthright lives of many kinds of birds for their own mess of pottage. They have heard the truthful warnings of many who *know* that in summer the House Wren is a constant menace to several species of birds — a menace that is spelling destruction to vanishing birds, greatly needing protection.

Some of us in a few short years have seen great changes in natural surroundings. Having seen the vanishing of some birds from a locality, and other birds take their places; having seen how easily the English Sparrow displaced the beautiful swallows, we can believe that quite as readily the Starling can displace the woodpeckers; moreover, on a small area we have seen the House Wren completely displace warblers and the Bluebird. Those who can lift their eyes to hills once beautiful with wild flowers and now see there naught but ugly weeds realize how easily in nature work the laws of displacement, and how easily good birds are displaced by bad ones.

National, via McGregor, Iowa.

BIRDS OF EASTERN McKENZIE COUNTY, NORTH DAKOTA

BY ADRIAN LARSON

The area covered by this paper lies in the western part of North Dakota. McKenzie County is bounded on the west by Montana, on the north and east by the Missouri River, and on the south, so far as this paper is concerned, by the Little Missouri River. This county, called the "Inland Empire," has about the same area as some of the eastern states; only the northeastern portion of it, about twenty townships (some seven hundred square miles), is covered by this paper.

The region treated is known as the Missouri Plateau, and has an elevation of about 2,300 feet—a little higher on the buttes, and a little lower along the Missouri River. It lies in the Transition Zone, and becomes hot enough at times to be properly classed as the arid Upper Sonoran Zone. Maximum summer temperature has reached 106°F., and in the winter season it has gone as low as 48° below zero. The prevailing winds are southeast and northwest, and the average rainfall is around 14 inches.

There is a great variation in the topography of this region. The most conspicuous topographic feature is the so-called "badlands." Along the Missouri River, and extending for two or three miles inland, the surface is cut up into innumerable gullies, canyons, coulees, washouts, and steep cliffs that beggar description; words can not describe these badlands adequately. Lignite coal seams that have burned, and are still burning, have caused much of the bizarre appearance of this country. Loose, easily eroded soil and torrential rains during the summer have also been factors in the making of the badlands.

When one is in the heart of the badlands, and looking north, the hills and valleys have a cheerless, treeless, and barren appearance. On the other hand, by looking in the opposite direction one will find that the badlands are very well covered with vegetation. Burr oak, gray and black birch, aspens, green ash, elm, juneberry, wild plum, choke cherry, pin cherry, silver berry, buffalo berry, black and red haw, various willows, red cedar, creeping juniper, and bearberry are found in profusion. Along the larger washes will be found cottonwoods, sage brush, buck brush, prickly pear and other forms of cactus, Spanish bayonet, rose bushes, gumbo lilies, climbing bittersweet, wild hops, gooseberry, currant, wild red raspberry, hazel brush—all of these and others will be found in the shadier portions of the badlands.

There may also be found rattlesnakes, bull snakes, blue racers, chipmunks, porcupines, bobcats, white-tailed deer, and formerly the

mountain lion, buffalo, and elk. One of the most conspicuous of the animals is the coyote. Timber wolves used to be found, but they have all been exterminated. The last wild buffalo was shot in 1901, and the elk some years earlier. It is reported that a few antelope are still in this country, but I have seen none myself. The mountain lion is extinct; the beaver was nearly extinct, but is again becoming numerous owing to a closed season.

The eastern bird student will probably be astonished at the number of western birds to be found here. The Rock Wren will be seen bobbing in and out of the crevices and among the rocks. The all-blue Mountain Bluebird is conspicuous. The Say's Phoebe, the Black-headed Grosbeak, and the Prairie Falcon will also be found.

The badlands are found along the Missouri River, but the big badlands are those of the Little Missouri River. These badlands begin near the northern boundary of South Dakota and follow the course of the Little Missouri northward to its junction with the Missouri, in some places reaching a considerable width. For some years a movement has been growing to have a large area of these badlands converted into a national park, to be known as Roosevelt National Park, because Roosevelt spent his cowboy life here.

Another ecological area is the timber growth along the flood plain of the Missouri River, which reaches a width of half a mile in places. The timber is chiefly cottonwood, with a mixture of ash and elm at higher elevations, and various small shrubbery. The fauna which occurs here is closely similar to that of the badlands; but in places where the trees have been cleared away the fauna will be more like that of the plains.

The plains form a distinct life area characterized chiefly by the grasses, such as the buffalo, grama, and blue-joint grasses. The wild rose, buck brush, and silverberry are to be found in the coulees and depressions. This area includes, of course, all of the farm lands. This country has been homesteaded and farmed more or less since 1903, and, as it is a land of fair crops, many of the first homesteaders are still living on their original filings. Many artificial groves of trees are scattered over the prairies, and on the whole it is more than likely that there are more birds here now than there were prior to 1903.

There remains for mention the lake and slough area. The region contains one large slough known as Dimick Lake, which is a great resort for waterfowl. There are also a few smaller sloughs scattered about, which play a part in the ecology of the region. Since this

region was on the edge of the Kansas ice sheet, it is well drained with the exception of the few sloughs mentioned.

My studies in this region began in September, 1912, and continued until April, 1914; then I was away until August, 1916, with the exception of a week in May, 1915. Then I resumed my studies in 1916, and continued them until April, 1926. I have had, therefore, twelve years in this region, including eleven summers and thirteen winters. J. J. Audubon traversed part of this region in 1844, and, doubtless some of the other early ornithologists touched the edge of it in passing up or down the Missouri River. We may believe that there has not been much change in the species of birds since those early years, even though certain species may have changed in status. As remarked above some birds, especially the woodland birds, have probably increased in abundance. It may be a possibility that the Passenger Pigeon, the Whooping Crane, the Trumpeter Swan, or the Wild Turkey have lived here in the past, but I have never heard any of the old settlers speak of them, and I can only leave them out of consideration.

[The following list contains 184 named forms.—Ed.]

EARED GREBE. *Colymbus nigricollis californicus.* A common summer resident and breeder in the sloughs. Average spring arrival May 14 (six years). Earliest spring arrival, May 6, 1923. Average fall departure, September 18 (two years).

PIED-BILLED GREBE. *Podilymbus podiceps.* A common summer resident and breeder. Earliest date of spring arrival, April 30, 1919. Average fall departure, September 19 (three years).

PACIFIC LOON. *Gavia pacifica.* On October 19, 1924, a bird was shot on the Missouri River which I considered was of this species. Color pattern, measurements, etc., tallied exactly with the description given in Bailey's "Handbook of Birds of Western United States." The skin was sent to the U. S. Biological Survey for determination, but I never again heard of it.

RING-BILLED GULL. *Larus delawarensis.* Rare. Two were seen on November 8, 1925.

FRANKLIN'S GULL. *Larus franklini.* A common transient visitant. Average spring arrival, May 1 (five years). Earliest spring arrival, April 29, 1924. Latest spring departure, June 8, 1924. During the spring migration huge flocks will often settle on newly ploughed fields and feed.

FORSTER'S TERN. *Sterna forsteri.* Not common. Two were seen along the Missouri River, June 12, 1925.

Black Tern. *Clidonias nigra surinamensis.* A common summer resident. Average spring arrival, May 20 (eight years). Earliest spring arrival, May 11, 1921. Average fall departure, July 30 (two years). The data on the departure of this species are unsatisfactory.

Double-crested Cormorant. *Phalacrocorax auritus.* Rare. A cripple of this species was caught at Watford City sometime during 1915. In 1920 I saw a mounted cormorant there which may have been the same individual.

White Pelican. *Pelecanus erythrorhynchos.* Not very common. Twenty-eight in a flock were observed on September 26, 1925.

Hooded Merganser. *Lophodytes cucullatus.* Rare. One was shot on October 29, 1916. The lack of fish-inhabited lakes probably accounts for the scarcity of diving birds and mergansers.

Mallard. *Anas platyrhynchos.* A very common transient; a few remain to breed. Both the Mallard and the Pintail lay their eggs in a grassy field or meadow often a mile or more from the nearest water. I have twice found nests of the Mallard at the base of a diamond willow tree in a deep oak and aspen covered coulee. One nest contained twelve eggs, which were later destroyed by crows; the same duck built another nest, which contained eggs when found. Average spring arrival, March 28 (nine years). Earliest spring arrival, March 17, 1926. Average fall departure, November 11 (six years). Latest fall departure, December 10, 1923. In some years of light snowfall a few Mallards have lingered throughout the winter at the air-holes in the Missouri River, feeding in nearby corn and stubble fields.

Gadwall. *Chaulelasmus streperus.* A common transient, a few remaining to nest. Earliest spring arrival, April 21, 1921. Average fall departure, November 9 (three years). Latest date of fall departure, November 19, 1923.

Baldpate. *Mareca americana.* A common transient, a few remaining to nest. Both the Gadwall and the Baldpate linger in the fall until the last pond hole is frozen. Average spring arrival, April 6 (five years). Earliest spring arrival, March 17, 1926. Average fall departure, November 3 (two years). Latest fall departure, November 5, 1924.

Green-winged Teal. *Nettion carolinense.* A common transient, a few remaining to nest. Average spring arrival, April 12 (four years). Earliest spring arrival, April 5, 1921. Average fall departure, October 31 (four years). Latest fall departure, November 9, 1924.

Blue-winged Teal. *Querquedula discors.* A common summer resident, nesting abundantly. Average spring arrival, April 29 (six

years). Earliest spring arrival, April 25, 1925. Average fall departure, October 15 (five years). Latest fall departure, November 9, 1924 (probably a cripple).

SHOVELLER. *Spatula clypeata.* A common summer resident and breeder. Average spring arrival, April 14 (seven years). Earliest spring arrival, March 24, 1918. Average fall departure, October 31 (four years). Latest fall departure, November 14, 1923.

REDHEAD. *Marila americana.* A tolerably common transient. average spring arrival, April 17 (three years). Earliest spring arrival, April 12, 1924. Average fall departure, October 27 (three years). Latest fall departure, November 9, 1924.

CANVAS-BACK. *Marila valisineria.* A rare transient. Latest fall departure, November 9, 1924, a red-letter day for ducks.

SCAUP DUCK. *Marila marila.* A tolerably common transient. Latest fall departure, November 9, 1924.

LESSER SCAUP DUCK. *Marila affinis.* A common transient, a few remaining on the large sloughs throughout the summer. Average spring arrival, April 17 (six years). Earliest spring arrival, March 31, 1925. Average fall departure, November 9 (three years). Latest fall departure, November 19, 1923.

RING-NECKED DUCK. *Marila collaris.* The status is about the same as the Scaup. Latest fall departure, October 26, 1924.

BUFFLE-HEAD. *Charitonetta albeola.* A tolerably common transient. Earliest spring arrival, April 29, 1923. Average fall departure, November 6 (three years). Latest fall departure, November 14, 1923.

RUDDY DUCK. *Erismatura jamaicensis.* A common transient; a few may nest. Average spring arrival, May 20 (two years). Average fall departure, October 23 (two years).

LESSER SNOW GOOSE. *Chen hyperboreus.* Rare. April 23, 1918, only record.

WHITE-FRONTED GOOSE. *Anser albifrons gambeli.* Rare. June 1, 1925, only record.

CANADA GOOSE. *Branta canadensis.* A regular, but not common, transient. Average spring arrival, March 24 (ten years). Earliest spring arrival, March 9, 1926. Average spring departure, April 5 (six years). Latest spring departure, April 8, 1920. Average fall arrival, October 26 (three years). Earliest fall arrival, October 18, 1924. Average fall departure, November 15 (five years). Latest fall departure, November 17, 1918.

Whistling Swan. *Cygnus columbianus.* Rare. The species was seen on the following dates: April 6, 1921; April 22-27, 1923; November 14, 1923; on this last date five were seen.

Bittern. *Botaurus lentiginosus.* A common summer resident in the marshes and meadows, breeding. Average spring arrival, May 22 (four years). Earliest spring arrival, May 14, 1920. Average fall departure, October 7 (six years). Latest fall departure, October 21, 1924.

Great Blue Heron. *Ardea herodias.* A common summer resident along the Missouri River, breeding. Average spring arrival, April 16 (three years).

Sandhill Crane. *Grus mexicana.* A common transient in both spring and fall. Average spring arrival, April 9 (eight years). Earliest spring arrival, April 3, 1921. Average spring departure, April 17 (three years). Latest spring departure, April 30, 1920. Average fall arrival, September 28 (eight years). Earliest fall arrival, September 14, 1919. Average fall departure, October 10 (seven years). Latest fall departure, November 5, 1924.

Sora. *Porzana carolina.* A common summer resident in the marshes, breeding. Average spring arrival, May 27 (three years). Average fall departure, September 30 (four years). Latest fall departure, October 18, 1925. An imitation of their call will often cause a racket of answering rail calls throughout the marsh.

Coot. *Fulica americana.* A common summer resident of the marshes, breeding. Average spring arrival, May 8 (four years). Earliest spring arrival, May 4, 1924. Average fall departure, October 28 (four years). Latest fall departure, November 9, 1924 (a cripple).

Northern Phalarope. *Lobipes lobatus.* Transient, not quite as common as Wilson's Phalarope. May 20-25, 1924.

Wilson's Phalarope. *Steganopus tricolor.* A tolerably common summer resident, breeding. Average spring arrival, May 11 (eight years). Earliest spring arrival, May 4, 1918. I have no fall records.

Avocet. *Recurvirostra americana.* Rare. I have seen it here only once, June 7, 1925. The scarcity of this species is probably explained by the absence of alkaline lakes and ponds.

Wilson's Snipe. *Gallinago delicata.* A common transient. Average spring arrival, May 2 (three years). Earliest spring arrival, April 27, 1921. Average fall departure, October 18 (nine years). Latest fall departure, November 14, 1923.

Long-billed Dowitcher. *Lymnodromus griseus griseus.* An uncommon transient. September 16-21, 1924.

PECTORAL SANDPIPER. *Pisobia maculata.* A common transient. Average spring arrival, April 28 (three years). Latest spring departure, May 6, 1923. Earliest fall arrival, July 20, 1924. Latest fall departure, September 24, 1912.

WHITE-RUMPED SANDPIPER. *Pisobia fusciollis.* An uncommon transient. May 20 to June 1, 1924.

BAIRD'S SANDPIPER. *Pisobia bairdi.* An uncommon transient. May 4, 1921. September 21, 1924.

LEAST SANDPIPER. *Pisobia minutilla.* A common transient. Average spring arrival, May 18 (three years). Latest spring departure, June 1, 1924.

SEMIPALMATED SANDPIPER. *Ereunetes pusillus.* A common transient, which is easily confused with the preceding. Average spring arrival, May 18.

MARBLED GODWIT. *Limosa fedoa.* Rare. A flock of eight was seen May 27, 1925.

HUDSONIAN GODWIT. *Limosa haemastica.* Rare. One was recorded on May 22, 1924.

GREATER YELLOW-LEGS. *Totanus melanoleucus.* An uncommon transient. Latest spring departure, May 22, 1924.

YELLOW-LEGS. *Totanus flavipes.* A common transient. Average spring arrival, April 24 (six years). Earliest spring arrival, April 17, 1925. Average spring departure, May 10 (two years). Latest fall departure, October 15, 1925.

WESTERN SOLITARY SANDPIPER. *Tringa solitaria cinnamomea.* A tolerably common transient. Average spring arrival, May 3 (three years). Earliest spring arrival, April 27, 1924. Latest spring departure, May 31, 1925. Earliest fall arrival, July 17 (two years). Latest fall departure, September 18, 1920.

WESTERN WILLETT. *Catoptrophorus semipalmatus inornatus.* An uncommon summer resident, possiblly breeding. Average spring arrival, May 13 (four years). Earliest spring arrival, May 1, 1924.

UPLAND PLOVER. *Bartramia longicauda.* A tolerably common summer resident, breeding. Average spring arrival, May 10 (eight years). Earliest spring arrival, May 6, 1921. Latest spring arrival, May 15, 1917. Only fall date, August 24, 1924.

SPOTTED SANDPIPER. *Actitis macularia.* A common summer resident, breeding; especially along the Missouri River. Average spring arrival arrival, May 21 (four years). Earliest spring arrival, May 15, 1917. Latest fall date, September 7, 1919.

LONG-BILLED CURLEW. *Numenius americanus.* An uncommon transient. Average spring arrival, April 24 (six years). Average spring departure, May 15 (two years).

AMERICAN BLACK-BELLIED PLOVER. *Squatarolla s. cynosurae.* A rare transient. May 18-22, 1924.

GOLDEN PLOVER. *Pluvialis d. dominica.* A rare transient. May 27, 1925; also seen in September, 1925.

KILLDEER. *Oxyechus vociferus.* A common summer resident, breeding. Average spring arrival, April 5 (ten years). Earliest spring arrival, March 28, 1918. Average fall departure, October 11 (four years). Latest fall departure, October 18, 1925.

SEMIPALMATED PLOVER. *Charadrius semipalmatus.* Uncommon. A small flock was seen on Dimick Lake on August 20, 1925.

BELTED PIPING PLOVER. *Charadrius melodus.* Uncommon. A straggler may be seen now and then on the sandbars in the Missouri River. June 12 and August 28, 1925, are my only dates.

RING-NECKED PHEASANT. *Phasianus torquatus.* The introduction is apparently successful, as they are becoming common along the Missouri River, where they frequent the timber and brush.

HUNGARIAN PARTRIDGE. *Perdix perdix.* I found two in an arroyo near the Missouri River on May 31, 1925. Several pairs have been liberated a year or two previously.

PINNATED GROUSE. Prairie Chicken. *Tympanuchus americanus.* A resident, though not very common in winter; it breeds more or less commonly in the neighborhood of the prairie marshes.

PRAIRIE SHARP-TAILED GROUSE. *Pedioecetes phasianellus campestris.* A common resident, which nests abundantly. This is our common prairie chicken.

WESTERN MOURNING DOVE. *Zenaidura macroura marginella.* A common summer resident, breeding. Average spring arrival, April 23 (six years). Earliest spring arrival, April 18, 1920. Average fall departure, September 28 (six years). Latest fall departure, October 15, 1923.

[TURKEY VULTURE. *Cathartes aura.* This species has been reported along the Missouri River; a friend has told that he has seen a half dozen of these birds roosting in the tall cottonwoods along that stream. I have never seen them there].

MARSH HAWK. *Circus hudsonius.* A common summer resident, breeding. Average spring arrival, March 21 (eleven years). Earliest spring arrival, March 12, 1913. Average fall departure, October 18 (six years). Latest fall departure, October 30, 1925.

SHARP-SHINNED HAWK. *Accipiter velox.* A tolerably common summer resident, breeding. Earliest spring arrival, May 6, 1925. Average fall departure, October 11 (two years).

COOPER'S HAWK. *Accipiter cooperi.* Uncommon. Breeds (?). Earliest spring arrival, May 8, 1925. Only fall record, September 25, 1924.

GOSHAWK. *Astur atricapillus.* A more or less common winter visitor. During October and November, 1916, it was very abundant and destructive to game birds and poultry. Average spring departure, March 15 (four years). Latest spring departure, April 2, 1917.

WESTERN RED-TAIL. *Buteo borealis calurus.* Not common; may breed. Average spring arrival, March 29 (three years). Average fall departure, October 19 (two years).

SWAINSON'S HAWK. *Buteo swainsoni.* A common summer resident, nesting in the cottonwoods or other tall trees, or on the cliffs in the badlands. Average spring arrival, April 24 (three years). Latest fall departure, October 19, 1924.

ROUGH-LEGGED HAWK. *Archibuteo lagopus sancti-johannis.* An uncommon winter visitor. Average fall arrival, October 31 (three years). Earliest fall arrival, October 23, 1924. Average spring departure, March 19 (five years). Latest spring departure, April 1, 1913. I had one of these birds in captivity for a week, and it would eat anything offered it. One day it pounced on a stuffed grouse, and hung on for dear life.

FERRUGINOUS ROUGH-LEG. *Archibuteo ferrugineus.* Not common; nests on the cliffs in the badlands. Earliest spring arrival, March 25, 1920. Latest fall departure, October 19, 1924.

GOLDEN EAGLE. *Aquila chrysaetos.* Rare; though in the vicinity of the badlands it may be found at any season of the year.

BALD EAGLE. *Haliaetus leucocephalus.* Rare; usually to be found during the fall and winter. Formerly both eagles nested commonly.

PRAIRIE FALCON. *Falco mexicanus.* A common summer resident in the badlands.

DUCK HAWK. *Falco peregrinus anatum.* Rare. One was caught in a trap on December 2, 1925.

RICHARDSON'S MERLIN. *Falco columbarius richardsoni.* Rare. Only record, September 5, 1924.

SPARROW HAWK. *Cerchneis sparveria sparveria.* A common summer resident, breeding. Average spring arrival, March 31 (nine years). Earliest spring arrival, March 14, 1918. Average fall departure, October 20 (two years).

Long-eared Owl. *Asio wilsonianus.* Tolerably common, breeding.

Short-eared Owl. *Asio flammeus.* Tolerably common, breeding. Apparently more common in winter.

Western Horned Owl. *Bubo virginianus occidentalis.* A common resident, breeding.

Snowy Owl. *Nyctea nyctea.* An irregular winter visitor. Earliest fall arrival, November 19, 1918. Latest spring departure, March 29, 1925.

Burrowing Owl. *Speotyto cunicularia hypogaea.* More abundant in the prairie dog towns than anywhere else.

Black-billed Cuckoo. *Coccyzus erythrophthalmus.* A tolerably common summer resident, breeding. Average spring arrival, June 9 (three years). Latest fall date, August 8, 1920.

Belted Kingfisher. *Ceryle alcyon alcyon.* A common summer resident along the Missouri River, breeding. Average spring arrival, April 10 (two years).

Northern Hairy Woodpecker. *Dryobates villosus leucomelas.* A tolerably common resident, breeding. A specimen submitted to Dr. H. C. Oberholser January 30, 1921, was pronounced *septentrionalis* [=*leucomelas*].

Downy Woodpecker. *Dryobates pubescens medianus.* A common resident, breeding.

Yellow-bellied Sapsucker. *Sphyrapicus varius varius.* Rare. The only one I have ever seen here was found in an aspen grove on May 2, 1918.

Red-headed Woodpecker. *Melanerpes erythrocephalus.* Not at all common. I have seen it on two dates, viz., June 18, 1921, and June 10, 1924.

Northern Flicker. *Colaptes auratus luteus.*

Red-shafted Flicker. *Colaptes cafer collaris.* Flickers are very common summer residents, and breed. *Collaris* is occasionally seen, but many appear to be that are in reality hybrids. Average spring arrival, April 10 (ten years). Earliest spring arrival, March 31, 1925. Average fall departure, October 3 (three years). Latest fall departure, October 7, 1921.

Poor-will. *Phalaenoptilus nuttalli nuttalli.* Rare. One was seen on September 5, 1919, in the badlands of the big Missouri.

Sennett's Nighthawk. *Chordeiles virginianus sennetti.* A common summer resident. Average spring arrival, May 31 (four years). Earliest spring arrival, May 26, 1913. Average fall departure, September 9 (six years). Latest fall departure, September 22, 1918.

[*To be continued*].

THE WILSON BULLETIN

Published at Sioux City, Iowa, by the Wilson Ornithological Club.

The present editorial organization is as follows: T. C. Stephens, Editor-in-Chief, Sioux City, Iowa; Myron H. Swenk, University of Nebraska, Lincoln, Nebraska; Wm. I. Lyon, Waukegan, Illinois.

The subscription price in the United States is $1.50 a year, and 50 cents a number; in all other countries of the International Postal Union the price is $2.00 a year, and 60 cents a number. Subscriptions and orders for single copies should be addressed to the Secretary, Prof. Howard K. Gloyd, State Agricultural College, Manhattan, Kansas, U. S. A.

EDITORIAL

As a result of the attention given at the recent Nashville meeting to the history of Alexander Wilson it has been thought by some that the organization which bears his name might properly be more active in bringing to the attention of the rank and file of present-day ornithologists the work of this great pioneer in the field.

Aside from the thought of giving more attention to the subject at the various annual meetings, the possibility of preparing a commemorative issue of the WILSON BULLETIN was suggested. It is, of course, very uncertain, and perhaps doubtful, whether any unpublished Wilsoniana would still be available for such a purpose. There is, however, an opportunity for the compilation of a source-book.

Let it be granted that our purpose would be to make the life and work of Alexander Wilson known more widely than at present. Perhaps, then, the best way to do this is to make known the available sources of information. As a tentative plan we offer the following suggested sections or departments:

(a) Any original and unpublished material that may be found to be available; and any sketches that may be prepared especially.

(b) Reproductions of all portraits of Wilson; perhaps also of the various printings of these, insofar as may be thought desirable.

(c) A list of all portraits with information as to the artist, the portrait, and the place of publication.

(d) A bibliography of Wilson's writings, including the various editions.

(e) A bibliography of biographies.

(f) Index of literary work other than ornithological.

(g) A key showing the whereabouts and possession of original Wilsoniana, insofar as the information is obtainable. Possibly this might also include original editions.

(h) An index showing possession and repository of much of the major and minor biographical material.

A very considerable amount of research and compilatory work is implied in such a program. It is, however, not impossible if worth while. It would have to be a co-operative enterprise, doubtless. Whether it would be worth while and serve a useful purpose can be best decided by general consultation.

GENERAL NOTES

Conducted by M. H. Shwenk

Notes on Some Iowa and South Dakota Birds.—We found large numbers of Lark Buntings (*Calamospiza melanocorys*) in and near Gitchie Manito State Park, in the northwest corner of Iowa, this year, (1927), during the breeding season. We also had the pleasure of photographing another western bird, the Burrowing Owl (*Speotyto cunicularia hypogaea*), near Hartley. There is a large colony of the Cliff Swallow (*Petrochelidon lunifrons lunifrons*) near Dell Rapids, South Dakota. They are accessible for photographing.—F. L. R. AND MARY ROBERTS, *Spirit Lake, Iowa.*

A Diving Spotted Sandpiper.—While collecting at Delevan Lake, Wisconsin, May 28, 1926, I was surprised to have a crippled Spotted Sandpiper (*Actitis macularia*) dive as I attempted to retrieve it. The water was very clear, and I could see the sandpiper swimming under the surface by the use of its wings only, is feet sticking straight out behind, and its neck fully extended. After swimming for about twenty feet, at a depth of from two to three feet, it then started to come to the surface, but saw me and started down again with renewed speed. The water became too deep for me to follow, so I returned to the bank to await developments. The bird finally came to he surface out of gun range and fully sixty feet from where it first dived. The wind then caught it, as it was beyond the shelter of the trees, and it took to wing, apparently none the worse for the experience.—EARL G. WRIGHT, *Chicago Academy of Sciences, Chicago, Ill.*

The European Starling in Kentucky.—The European Starling (*Sturnus vulgaris*) has apparently become established in the Blue Grass Region of Kentucky. The first record for the region was obtained by Mr. Lucien Beckner at Winchester in 1920, but this must have been a solitary individual, since no others were seen for five years. In 1925 the bird was seen in Clark County by V. K. Dodge, and in 1926 it was observed in Versailles by Dr. A. S. Hendrick, in Nicholasville by P. T. Bronaugh, and in Lexington by H. M. Minor. Meanwhile it had appeared in the western part of the state and was reported in 1925 by Dr. M. Y. Marshall from Henderson County. In the fall of 1927 it was observed regularly in Lexington, where several small flocks are now spending the winter.—W. D. FUNKHOUSER, *University of Kentucky, Lexington, Ky.*

A Bird "Life List."—The recent editorial suggestion (WILSON BULLETIN, xxxix, p. 231) of a "life list" took my eye, so I ran through the check list (1910) and counted approximately 500 species and subspecies on my "life list." I then ran through to eliminate the subspecies, and found I had 432 species as follows: Pygopodes, 26; Longipennes, 32; Tubinares, 11; Steganopodes, 17; Anseres, 45; Herodiones, 14; Paludicolae, 10; Gallinae, 11; Columbae, 5; Raptores, 29; Coccyges, 5; Pici, 13; Macrochires, 8; Limicolae, 45; and Passeres, 163.

I find that I am especially low on Passeres, for there are many of the local warblers that I must have observed that I have forgotten about. I am sure I can get a dozen or more new to the above list, this spring. I have collected most of the large forms. I am just wondering how my "life list" would compare with that of other working ornithologists. I know that my small bird list does not come anywhere near par, but believe I have a good list of the water and shore birds.—ALFRED M. BAILEY, *Chicago Academy of Sciences, Chicago, Ill.*

The European Starling at Urbana, Illinois.— The introduction of any exotic species of animal affords the student of migration phenomena an interesting opportunity to study the subsequent dispersal of the species. Such a chance is afforded at the present time to bird students of the Middle West by the slow but persistent advance westward of the European Starling (*Sturnus vulgaris*). The range and dispersal of the species, from the nucleus liberated in New York City in 1890-91, to and including the year 1922, is summarized by Mary T. Cooke in Circular 336 of the U. S. Department of Agriculture. This summary includes one record only from Illinois, and even at the present time, Illinois still remains very close to the periphery of the range of the Starling. However, new records have steadily been accumulating recently, and it is with a view of keeping those interested in the movements of the Starling informed as to the activity of the birds that the following notes are published. In no case is there any doubt as to the authenticity of the record, the observers in all cases being perfectly familiar with the Starling from ornithological work done in the East.

1. March 19, 1926. One lone Starling was seen in the cemetery south of the campus of the University of Illinois. The bird kept by itself, though flocks of Bronzed Grackles were near at hand. Record by A. S. Hyde.

2. April 3, 1926. A small flock of eight or nine Starlings, roosting in the University forestry preserve, in company with large flocks of Bronzed Grackles. Birds not segregated. Record by Dr. L. J. Thomas and A. R. Cahn.

3. April 5. 6, 7, and 8, 1926. During this time twenty-six Starlings were seen in the forestry preserve. Some of these may be duplicate records, or recounts, but on the 7th seventeen birds were seen under conditions in which no duplication was possible. The birds were associated with flocks of Bronzed Grackles, Red-winged Blackbirds and Cowbirds. Record by A. R. Cahn.

4. April 11, 1926. One lone Starling was seen along the Salt Fork River, south of the University woods. This bird was much interested in an old woodpecker's hole about eighty feet up in a dead cottonwood. It was first seen coming out of the hole, but was never again seen in the vicinity, although the tree was carefully watched. Record by A. S. Hyde.

5. April 16, 1926. Two Starlings were seen flying over a pasture about a quarter of a mile from the previously mentioned cottonwood tree. Record by A. S. Hyde.

6. April 18, 1926. Five Starlings, scattered in a flock of Red-winged Blackbirds and Cowbirds, were seen near the cemetery. Record by A. R. Cahn.

7. April 21, 1926. Four Starlings were seen near strip mines, four miles south of Danville. The birds were entirely alone. Record by A. R. Cahn.

8. November 10, 1926. Five Starlings were seen in a flock of grackles in the forestry preserve. Record by A. R. Cahn.

9. November 14, 1926. Several Starlings were seen with a flock of grackles in the cemetery south of the University campus. Record by A. R. Cahn.

10. May 10, 1927. A flock of a dozen or more Starlings were seen in a wooded pasture north of Brownfield Woods. Record by A. S. Hyde.

11. May 12, 1927. A lone Starling was seen in a maple tree in front of the Natural History Building, on the campus of the University. Record by A. R. Cahn.

12. July 3, 1927. Lone Starling flying northeast across the residence district of Urbana. Record by A. S. Hyde.

13. November 14, 1927. A flock of eight or ten Starlings flew south, flying low over the fields west of Bondville, Champaign County. Record by A. S. Hyde.

14. November 16, 1927. Two Starlings in with a flock of about twenty Bronzed Grackles were seen in the residence district of Urbana. Record by A. R. Cahn.

15. November 19, 1927. Three Starlings were seen flying south over the Brownfield woods region. Record by A. S. Hyde.

16. December 3, 1927. Three Starlings were seen separately in the forestry preserve. The birds were very tame and were approached to within twenty feet and examined for over ten minutes with high power binoculars. Record by A. R. Cahn.

The only previously published records from the territory covered in this note are those of Prof. Frank Smith (*Illinois Audubon Bulletin*, Spring, 1922), who reported seven Starlings from Urbana on February 19, 1922. There were no Starlings seen by anyone connected with the University between this date and the first of the records offered herewith, in spite of the fact that bird students were constantly in the field. The note by Mr. Hunt (*Auk*, xliii, p. 239) reporting four Starlings from Oak Park, Illinois, for December, 1925, is the most recent record for the state which the writer has come across. It would seem, then, as if the Starlings were beginning a more determined effort to extend their range into Illinois, the results of which should be carefully watched by bird students.—A. R. Cahn, *University of Illinois, Urbana, Ill.*

The Fall Bird Migration in Ohio.—The high tide of the fall migration in Tuscarawas County, Ohio. is between September 15 and October 1. With a sparrow wave in October, any night between the above dates the call notes are to be heard, unless we have a night wind in the S. E. to S. The most favorable nights follow several warm days, with S. E. to S. S. W. winds changing to cooler N. W. to N. wind; and if cloudy the birds fly much lower and their call notes are more distinct. On some of the more favorable nights there are but few intervals in which call notes are not to be heard. The call notes of the birds, and the few occasions when we have seen them transit the moon, indicate their traveling in groups. Can we judge the numbers in these groups by the numbers we find in groups in the fields and woods, after an all night flight? The line of migration in Tuscarawas County, with some exceptions, is N. W. to S. E. for the fall migration, and from S. E. to N. W. in the spring migration for the ducks, geese, swans, herons and the shore birds. For the land birds we have not sufficient data to check their course. The well marked exceptions to the S. E. movement in the fall are the Nighthawks, Crows, Red-winged Blackbirds, Bronzed Grackles and Robins. Their line of migration is S. W. in the fall and N. E. in the spring. In Delaware County, one hundred miles west, they hold to the S. W. and N. E. line. The land, water, and shore birds hold to a North and South line, and seem to follow the Scioto Valley.—Charles R. Wallace, *Delaware, Ohio.*

A Durable Barn Swallow's Nest.—There is a nest of the Barn Swallow (*Hirundo erythrogastra*) in my barn. It is plastered onto a cross-beam two inches below the hay loft floor, just out of reach of my hand and entirely impossible for cats. It was built there in May, 1915, and has been occupied and a brood of swallows has been raised in it every year since then. In 1926 two broods were raised in it by the same pair of swallows. It has never been possible to

catch the birds on the nest, and so they have not been banded, therefore it is not possible to be certain that the nest has been occupied by the same birds each year, although the birds have seemed to be the same, judged by appearance and actions and habits. The only thing done to the nest each year is a renewal of some of the lining. No new mud has ever been put on it. When the Barn Swallows first come to this region this nest is visited and inspected, and two birds come and go occasionally until nesting time arrives, when they take possession and resent intrusion in the barn. Even though the barn is in constant use they never seem to become accustomed to the presence of people, stock, dogs or cats. After the young have left the nest the parents remain in the vicinity, and make frequent visits into the barn and to the nest; but by the middle of August they are gone from the immediate vicinity. During the past summer, 1927, four young were raised, and there was one infertile egg, or at least one did not hatch. Never before has there been an unhatched egg. It will be interesting to see how long this nest will last. It must have been fashioned by master builders. I would like to have the recipe for the glue that holds it to the beam.—Lynds Jones, *Oberlin, Ohio.*

Some Bird Notes from the Badlands of North Dakota.—During part of the summer of 1918 I was doing field work in North Dakota. I was much interested in the region north of Dickinson, in the badlands of the Little Missouri Valley.

The Ferruginous Rough-legged Hawks were quite common, and sat around on rocks and fence posts near a gopher burrow or a prairie dog town, waiting for an opportunity to catch one of the small animals. Marsh Hawks were also common, and behaved in the same way as they do in Iowa. Sparrow Hawks were the most common of the hawks, and fed almost exclusively upon grasshoppers, which were quite abundant. I saw only one Short-eared Owl, but hundreds of Burrowing Owls. The latter have the curious habit of sitting up on a mound in such a posture that they closely resemble the prairie dogs at a distance.

Among the smaller birds McCown's Longspur and Sprague's Pipit were very interesting to me. I saw an occasional Baird's Sparrow that I could identify, and probably dozens that I could not. The Lark Bunting was very common, and the flocks of young and old were a familiar sight. There were a good many Magpies along the rivers, and I shot at several, but seemed to be unable to get one without blowing all his tail feathers out. The Sharp-tailed Grouse was another interesting bird, and it was still quite common in the badlands. Coyotes were also common. The badlands country is most interesting, but is hard on the temper to try to drive a car through it. Roads are practically non-existent, and one wanders about jumping creeks and climbing hills at random. These badlands are quite heavily timbered, in places, with such trees as ash, elm, cottonwood, burr oak, birch and aspen; while the buffalo berry (*Shepherdia*) fills the river bottoms with a dense tangle of brush, or low trees. The only bush growing on the hill is the "buck bush" (*Symphoricarpos*). Some of the "coulees" are filled with the Red Cedar, but it seems to be rather local.—Ira N. Gabrielson, *Portland, Ore.*

The Last Days of a Certain Great Horned Owl. — Many great Horned Owls (*Bubo virginianus virginianus*) that have been shot or trapped near my home reach my hands. On October 22, 1925, a live female of this species was brought to me. The last days of this bird are interesting, as they show the fierce

courage displayed by this species. A friend, living near Beulah, Iowa, keeps many chickens of the Leghorn breeds, and has a regular loss of the hens that persist in roosting in the trees. This owl entered a No. 1½ steel trap and succeeded in carrying the same away on the night of October 14. My friend informed me that the same owl came on the nights of October 16, 17 and 18, and each time carried away a chicken. Roused by the barking of his dog, he said that he heard the rattle of the trap chain each time. The owl was recaptured during the night of the 21st by getting the trap on the left foot into a larger one, such as is used for foxes. The owl was blind in the left eye. On dissection I found a shot within the eye-cup, the pellet having entered from above. It is fair to assume that *Bubo* can maintain itself, at least for a time, even with one foot out of commission and only one head-light —Oscar P. Allert, *McGregor, Iowa.*

Notes on Birds of Pinellas and Pasco Counties, Florida.— These notes, acquired during the first half of 1927, are supplementary to the writer's paper bearing the above title in the Wilson Bulletin, XXXVIII, pp. 140-155. The following four species are added to the writer's list for these counties:

Blue-winged Teal (*Querquedula discors*).—A small flock was observed on a fresh water pond in southern Pasco County, on March 17, 1927, and a female collected.

American Oyster Catcher (*Haematopus palliatus*).—One individual of this now rare species was seen at Pass-a-Grille on April 13, 1927.

Pigeon Hawk (*Falco c. columbarius*).—One adult was seen bathing at the margin of a small salt water pool near Pass-a-Grille on April 3, 1927.

Nelson's Sparrow (*Passerherbulus n. nelsoni*).—An immature specimen, much resembling *P. caudacutus*, taken by the writer at Indian Pass on March 25, 1925, has been identified as *P. n. nelsoni* by Dr. H. C. Oberholser. Two typical adult Nelson's Sparrows were collected in that vicinity in 1927; one on January 29, the other on February 28. All of these birds were in salt marshes along the gulf coast, associated with Sharp-tailed Sparrows.

The following three species, uncommon in this region, credited in my previous paper to these counties, by the observations of others, were in 1927 collected there by the writer:

Cabot's Tern (*Sterna sandvicensis acuflavida*).—Previously reported by courtesy of Mr. A. C. Bent, who "saw several and collected one" in this territory in the spring of 1925. In 1927 these birds were seen by the writer at various times between March 10 and April 16. On March 21, on Mullet Key in a flock of about 175 terns, mostly Royal Terns (*Sterna maxima*), were sixty or seventy Cabot's Terns and eight or ten Forster's Terns (*Sterna forsteri*). Four Cabot's Terns collected on that date were all adult males. A flock of sixty or more Cabot's Terns was seen among these keys up to the time the writer came north on April 16; so an arrangement was made with Mr. H. P. Bennett, warden in charge of the Tampa Bay Refuges, to visit possible nesting sites to see if they remained to nest. Therefore, in June, 1927, Mr. Bennett visited all likely nesting beaches between Mullet Key and Pass-a-Grille without, however, seeing any Cabot's Terns. The old breeding places ten miles farther north, near John's Pass, where thousands of terns of several species nested a half century ago, are now places of public resort, connected by long causeways and bridges with the mainland.

Yellow Palm Warbler (*Dendroica palmarum hypochrysea*).—These birds, previously credited to the region by W. E. D. Scott's record, were found by the writer with a large flock of Palm Warblers near Tarpon Springs, February 26, 1927, and a pair of adults in breeding plumage collected. An immature male was also collected at Pass-a-Grille on April 9, 1927.

Brown-headed Nuthatch (*Sitta pusilla*).—Reported previously by courtesy of Mr. A. C. Bent. Several were seen and one collected by the writer in southern Pasco County, February 27, 1927.

Reddish Egret (*Dichromanassa rufescens*).—This species seen once in 1925 was represented in the spring of 1927 by several yearling birds, one being collected.

Cuban Snowy Plover (*Charadrius nivosus tenuirostris*).—This pale little plover is not uncommon in winter on the mud flats around the mouth of Tampa Bay, and a female with a hard shelled egg ready to be laid was taken on Mullet Key on March 21, 1927.

Scott's Seaside Sparrow (*Passerherbulus maritimus peninsulae*).—Two specimens were collected at Indian Pass, twenty miles south of Tarpon Springs, one on January 24 and one on the 29th, but none were seen there in the next ten weeks. There does not seem to be any previous record of the occurrence of this form south of the type locality, Tarpon Springs.—Wm. G. Fargo, *Jackson, Mich.*

A New Year's Bird Census at Nashville, Tennessee.—The following list of birds was made on January 1, 1928, and on a brief trip the day before, by about thirty members of the Wilson Ornithological Club. January 1 was Field Day of the Annual Meeting, and the census was taken at Idlewild Wood on Stone's River, about ten miles southeast of Nashville.

The morning was spent in the woods bordering the cliffs above the river and on the slope leading to the water's edge. The day being fair but very cold. the southern exposure of this bluff and the plentiful supply of hackberries proved attractive to an unusual number of birds. In the afternoon a brief trip was made to the bottoms, to list the birds of that environment. The water birds listed were noted on December 31, 1927, during on hour's trip to Radnor Lake, five miles south of the city, by a small group of observers. The list for the two trips follows:

Pied-billed Grebe, 1; Mallard, 125; Pintail, 4; Lesser Scaup, 75; Coot, 125; Kildeer, 5; Bob-white, 8; Mourning Dove, 35; Cooper's Hawk, 1; Red-tailed Hawk, 1; Sparrow Hawk, 3; Belted Kingfisher, 2; Hairy Woodpecker, 6; Downy Woodpecker, 10; Yellow-bellied Sapsucker, 2; Pileated Woodpecker, 3; Red-bellied Woodpecker, 7; Flicker, 10; Phoebe, 1; Prairie Horned Lark, 1; Blue Jay, 15; Crow, 250; Starling, 20 (roosting in city); Meadowlark, 12; Goldfinch, 5; Savannah Sparrow, 4; White-crowned Sparrrow, 3; White-throated Sparrow, 50; Field Sparrow, 30; Slate-colored Junco, 250; Song Sparrow, 14; Fox Sparrow, 2; Towhee, 9; Cardinal, 55; Cedar Waxwing, 3; Loggerhead Shrike, 1; Myrtle Warbler, 15; Mockingbird, 23; Carolina Wren, 11; Bewick's Wren, 1; Winter Wren, 1; Brown Creeper, 10; Tufted Titmouse, 15; Carolina Chickadee, 25; Golden-crowned Kinglet, 25; Hermit Thrush, 5; Robin, 47; and Bluebird, 12. A total of forty-eight species and 1285 individuals.

In this connection it is of interest to note that a Christmas census, taken a week previous, netted a total of sixty-two species, covering of course a much larger area.—A. F. Ganier, *Nashville, Tennessee.*

BIRD BANDING NEWS

Conducted by Wm. I. Lyon

DUCK BANDING IN LIMA LAKE IN 1927

BY T. E. MUSSELMAN

Lima Lake is a tremendous swamp covering about ten or twelve thousand acres, located half-way between Quincy and Hamilton, Illinois. This site has been a paradise for hunters and fishermen since time immemorial. Numerous attempts have been made to drain the lake, which at places is now criss-crossed with drainage ditches. Although nearly a million dollars have been dropped in the mud, yet Lima Lake continues.

Due to the fact that a new project for its drainage is in the course of completion, I felt that it would be opportune for me to cease my duck banding activities at Scobey Lake, Missouri, and carry on at Lima Lake, Illinois, as I probably shall have not more than two seasons of banding here in which to find the definite migration course of the birds which are passing up and down the Mississippi River.

I was fortunate in being offered a well appointed hunting cabin at the end of one of the lateral drainage ditches. When the Illinois State Game and Fish Department heard of my proposed banding work, they were very generous in offering me the services of their local warden, together with his skiff and outboard motor. I cannot overstate the value of this contribution to my season's work, as Mr. Earl Caldwell, the warden, knows every foot of the lake and is one of the most experienced trappers and hunters that I have ever known.

The use of the boat allowed us to travel to the extremes of the lake where we could place our traps to suit ourselves. Trap No. 1 was constructed well out on a submerged mud flat and was placed in the shade of a couple of small willow trees. It was by far our most successful trap. Traps No. 2 and No. 3 were inland, one being in a small cup of water on the edge of a corn field, the other near a small woodland which was sparsely covered with water. No. 4 was in a slough and was primarily set with the purpose of capturing scaup and teal, while No. 5 was placed in the midst of a fifty-acre lily pond.

The customary covered, heart-shaped traps were built at all places. These traps were set before the ice was off the swamps. Huge flocks of Pintails and Mallards had already arrived from the Southland and were attracted to the vicinity of the traps by shelled corn which was thrown over the surface of the ice. Mr. Caldwell visited these localities from day to day, scattering corn, which resulted in the ducks learning that they could secure food in these spots. As the ice melted live decoys were placed in and about all the traps, resulting almost immediately in very satisfactory catches of the larger ducks.

A letter from Mr. Taber, of Kansas, Illinois, asked me to take the weights and make drawings of the wing expansion of the birds banded. This added much to the interest of banding as it gave me a more intimate knowledge of the various ducks. I believe that he is running an experiment on the relationship of speed in flights to wing area, and no doubt his article will appear shortly in one of the scientific magazines. Ducks which were thus captured, for weighing and drawing were not banded immediately and released, as is ordinarily done, but were put in crates and returned to the cabin.

These crates were built for the reception of the large Mallard decoy ducks, the laths being placed close enough to prevent their escape. On running the traps one succesful morning, we found we had captured an entire flock of twenty-eight Green-winged Teal. They were hard to capture as they dived and swam about under the water; but gradually, one by one, they were caught and dropped into those crates built for the Mallards. We took it for granted that they were secure in these floating crates. However, they flew up and crawled through the slats in the top of the crate, about as fast as we dropped them in the doorway. Consequently very few of these interesting birds carried government bands with them when they said "good bye" to Lima Lake and headed for the Northland.

The high light of the banding season occurred on March 28, when among one of our largest catches was a drake Mallard which carried a heavy leg band, about an inch long, on its left leg. On the inside, was stamped the Bible verse, "God is love." On the outside was a lockbox number at Kingston, Ontario. This was one of Jack Miner's ducks which we had captured. A government aluminum band with number 300,527, was placed upon the right leg of the bird and, after taking the above picture of the bird, it was released again.

Fall is here with its hunting season (1927). Large numbers of returns have already come in — all from Canada, except one from St. Paul. However, from now on, I shall be receiving additional returns from the Dakotas, Iowa, Missouri, and later from Arkansas and Louisiana.

Last spring was not a good season for duck banding because of the tremendous expanses of water which covered the swamp lands. This gave the ducks too much territory over which to feed, and I am hoping that the following spring will be a dry one, so that it will force the ducks to feed in more limited areas.

Of all the banding that I have done in recent years, I enjoy the duck banding more than others, because it requires a spring vacation of ten days to do the work well. Then during the fall, the daily returns stimulate interest. At the present time I cannot give the summary of the 1927 returns but hope to do so in some future issue.

QUINCY, ILLINOIS.

DUCK BANDING NEAR THE CHEYENNE BOTTOMS, KANSAS

BY FRANK W. ROBL

In 1924, I banded 88 birds, of which 78 were water fowl. From these I have received 8 returns, or approximately 9 per cent. Among those returns were two Blue-winged Teal that were shot at Palisada in Campeche, Yucatan Peninsula, Mexico; these returns showed that the flock stayed pretty well together. Another Blue-winged Teal that had been banded here, July 16, was shot at Lake City, Minnesota, on September 16, the same year, showing that ducks hatched here may migrate northward before they start the fall migration for the south.

In 1925, I banded 356 birds, of which 347 were water fowl. The returns from these have been 31, or approximately 9 per cent. Four of these were killed in Canada. My best return in this lot was a Pintail banded February 22, 1925, taken on May 20, 1926, near Kotceba, on the Kobuc River in Alaska, about two hundred and fifty miles north of Nome. In 1926, 225 birds were banded by me, of which 208 were water fowl. Thirty-two returns were reported on those, or a fraction more than 14 per cent. So far in 1927 I have banded 220 birds, all of which are water fowl; there have been 9 returns.

Summing up, I have banded 889 birds, with 80 returns, which is an even 9 per cent. Having no information on the returns to other bird banders I do not know whether the percentage on my returns is good, or not. Most of the ducks I have banded are Pintails, followed numerically by Mallards, Blue-winged Teals, Green-winged Teals, Widgeons, and a few other species. I trap all of these ducks on a little creek about a quarter of a mile from my home, which is only four miles from the now famous Cheyenne Bottoms. The 80 duck returns were obtained in the following localities: Alaska 1, Northwest Territory 1, Saskatchewan 4, Manitoba 2, Arkansas 1, California 4, Iowa 3, Kansas 15, Louisiana 3, Minnesota 1, Mississippi 1, Montana 1, Nebraska 12, North Dakota 8, Oklahoma 5, Oregon 1, South Dakota 1, Texas 12, Wyoming 2, Campeche, Old Mexico 2. Toal, 80.

The soil in the Cheyenne Bottoms is blue clay, which is so compact that it makes an almost water-tight bottom. Since there is not natural drainage, evaporation is about the only way for the water to pass off. With another

heavy rainfall next year the water level may be raised high enough to drain off through Cheyenne Creek (where I have my traps), thence into Cow Creek, and thence into the Arkansas River, near Hutchinson.

There is a bill (the Hope Bill, H. R. 7361) now before Congress appropriating $350,000 to pay damages to land owners and to dredge an inlet and an outlet so the lake may be made permanent. Sportsmen and conservationists are strong supporters of this plan, and the state and federal governments are interested.

There is a good deal of curiosity as to the origin of the Cheyenne Bottoms. One theory is that this great bowl-shaped depression is an ancient buffalo wallow. In former times the buffaloes migrated through this region in enormous herds—perhaps by the hundreds of thousands. In the wet seasons these animals would carry away vast quantities of mud sticking to their shaggy fur. In the dry seasons the fine, soft soil would be whipped up by the winds and carried away.

ELLINWOOD, KANSAS.

[On August 12 and 13, 1927, about ten inches of rain fell over about seven townships in central Kansas. This water drained into a lowland known as the Cheyenne Bottoms, and produced an artificial lake of about 25,000 acres in extent. The name comes from the Cheyenne Indians, who fought the Pawnee Indians for possession of this hunting ground. As a result of this heavy rainfall the bottoms are now under water, varying in depth from one to eight feet. There is no outlet or natural drainage, so the water still remains, except as it evaporates. The soil is not especially good, and it has been used chiefly for hay crops. Many haystacks are now partially submerged, thus causing the loss of thousands of tons of hay.

This is not the first inundation of this area. Up to 1927 it had been dry since 1915, but prior to that it had been more or less under water at various times. It is now estimated that the present water, without new influx, will maintain the lake through 1928, and possibly 1929.

What to do about the situation has become a question of general interest. The land owners and others insist upon a plan of drainage to make the land again available. Another group proposes to let the water stand, thus creating an extensive, permanent inland lake. It is looked upon as an important wild-fowl refuge or shooting ground. As far back as 1904, "during the wet season," much market hunting was done in this area. In the current reports it is stated that at least 500,000 ducks were killed (in 1904) for the markets of Kansas City, St. Louis, and Chicago. The Federal Government has become interested. We understand that a bill (H. R. 7361) has been introduced in Congress authorizing the appropriation of $350,000 with which to pay for the lands, build dikes, etc.

It is said that those interested in reclaiming the land have a plan for constructing a long drainage ditch, which would be expensive also, and which might result in overflow of new property farther away. What the outcome will be no one can now foretell.—Ed.]

PROCEEDINGS OF THE WILSON ORNITHOLOGICAL CLUB

Fourteenth Annual Meeting

The Fourteenth Annual Meeting of the Wilson Ornithological Club was held at Nashville, Tennessee, on December 30-31, 1927, followed by a Field Day on January 1, 1928. This was the second Nashville meeting, and that city had been chosen in pursuance of an established custom of meeting in conjunction with the American Association for the Advancement of Science when that body meets in the middle west, and in response to an invitation of two years' standing from the Tennessee Ornithological Society who acted as hosts on the occasion. The Friday sessions were held in the beautiful new buildiings of Scarritt College, those of Saturday in the main building of Peabody College, both quarters being attractive and comfortable. The attendance was augumented by those who had remained over from the meetings of the eclogical, entomological, and nature study societies, and allied organizations which had met on preceding days. The program was carried out almost as previously announced, and as follows:

Friday, December 30, 1927

Forenoon Session, 9:00 o'clock. Room 29, Scarritt College.

Business session, a report of which will be found below.

Address of welcome, by Professor Jesse M. Shaver, President of the Tennessee Ornithological Society.

Response, by Dr. Lynds Jones, President of the Wilson Ornithological Club.

1. Recent Bird Records in Northeastern Colorado and their significance in connection with Geographical Distribution. By F. L. Fitzpatrick, Coe College, Cedar Rapids, Iowa.

   An ecological paper which will be published in a future number of the BULLETIN.

2. Notes on the European Tree Sparrow. By Elizabeth Allen Satterthwait, Webster Grove, Mo.

   This introduced species is found locally in the vicinity of St. Louis, apparently non-migratory. Mrs. Satterthwaite gave an excellent account of the color markings, and also discussed the history, feeding and nesting habits.

3. Evolution of the Nesting Habits of Birds. By Z. P. Metcalf, North Carolina State College, Raleigh, N. C.

   Dr. Metcalf presented a very careful analysis of the nest-building habits of birds, including a provisional diagram showing the possible sequence in which the various types of nests have been derived.

4. Bob-white in Washtenaw County, Michigan. By Thos. L. Hankinson, State Teachers' College, Ypsilanti, Michigan.

   An account of the feeding and taming of a winter flock of Bob-whites in the back-yard of a suburban home, illustrated with lantern slides.

5. Scarcity of Potato Beetles Due to Abundance of Bob-whites. By E. L. Moseley, State Teachers' College, Bowling Green, Ohio.

   This paper emphasized the economic value of Bob-white and pointed out a marked increase in these birds since they have been on the protected list in Ohio.

6. A Study of the Mechanism of Pellet formation in the Great Horned Owl. By Dr. and Mrs. C. I. Reed, Baylor University, Dallas, Texas.

   A description of an experiment carried out with birds in an effort to learn something of the digestive processes in the human body.

7. On the Status of Harlan's Hawk. By C. W. G. Eifrig, Concordia Teachers' College, River Forest, Illinois. (Read by A. F. Ganier).

Substantiating the validity of this subspecies, and calling attention to the fact that its summer habitat has been definitely fixed in British Columbia .

Lunch in the Cafeteria of the Southern College of the Y. M. C. A.

Afternoon Session, 1:30 o'clock. Room 29, Scarritt College.

8. Gerard Troost, Nashville's first Naturalist. By W. M. Walker, Nashville, Tenn.

A Dutch naturalist (1776-1850) who came to America in 1808, became first president of the Philadelphia Academy of Science (1810-1815), moved to Nashville in 1825, being shortly afterward made State Geologist, which position he held until his death.

9. Alexander Wilson—a Sketch. By Mrs. H. J. Taylor, Berkeley, California.

10. Alexander Wilson's Visit to Nashville in 1810. By Vera Kearby, Nashville, Tenn.

11. Alexander Wilson as an Artist. By A. C. Webb, Nashville, Tenn.

These three papers were intended to draw attention to a portion of the early ornithological history of America, part of which centered in the region of Nashville. Mrs. Taylor exhibited lantern slide reproductions of all the known portraits of Wilson. Miss Kearby presented lantern slide views of a number of local sites known or supposed to have been visited by Wilson. The Nashville and Tennessee Warblers were found and named by Wilson in this locality at this time. Professor Webb exhibited more than a hundred copper engraved plates belonging to Wilson's "Birds of America," explaining the methods of reproduction and the technique of Lawson and other engravers who etched the plates. It is hoped that these papers may later be published in the WILSON BULLETIN.

12. Notes on the Sparrows which occur in the Nashville Region. By Harry Crawford Monk, Nashville, Tenn.

Notes on the relative and seasonal distribution of the seventeen species of sparrows which have been recorded in this area; with notes also on the nesting habits of those which are found in the summer.

13. Warblers which Nest in Tennessee. By George R. Mayfield, Vanderbilt University, Nashville, Tenn.

An annotated list of the members of the warbler family which have been recorded as breeding in the State, with specific data on the nesting, seasonal distribution, and characteristics, including also a summary of migration records covering twelve years of observation.

Evening Session, 7:00 o'clock. The Grille Room of the Hotel Hermitage.

At this time and place was held the Annual Dinner of the Wilson Ornithological Club, with the members of the Tennessee Ornithological Society. After the dinner each of the forty-six members present was introduced and responded impromptu.

Saturday, December 30, 1927

Forenoon Session, 9:30 o'clock. Social-Religious Building, Peabody College.

14. Are Birds Decreasing in Numbers? By Miss Althea R. Sherman, National Iowa. (Read by Mrs. H. J. Taylor).

From carefully kept records covering a long period of time Miss Sherman reaches the conclusion that there has been an actual decrease of birds in the area under consideration, and discusses the probable etiological factors.

15. Bird Study in the Public Schools. By Mary L. Bailey, Sioux City, Iowa.

Mrs. Bailey has been Supervisor of Bird Study in the Public Schools of Sioux City for a number of years, and has developed a method of presentation which is of general interest, and especially to those engaged in similar work.

16. More detailed data in local lists. By Lynds Jones, Oberlin College, Oberlin, Ohio.

The paper sets forth that specific and definite data are of far greater ornithological value than generalized remarks concerning status.

17. An Itinerant Field Class in Ornithology. By T. C. Stephens, Morningside College, Sioux City, Iowa.

A narrative account of a traveling class in bird study through several northwest states in 1927.

18. The Birds about the Pennsylvania State College Nature Study Camp. By Marjorie Ruth Ross, State College, Pa.

A description of the equipment and environment of the camp in the Alleghany Mountains, where nature study is taught during the summer season, with a description of habitats and the more interesting birds to be found there.

19. Feeding Habits of the Cardinal. By Mrs. Cecil Roberts, Clinton, Ky. (Read by Mrs. E. B. Walker).

A most detailed and interesting record of observations on the life-history and economic and esthetic value of this beautiful bird.

Lunch in the Cafeteria of the Southern College of the Y. M. C. A.

Afternoon Session, 2:00 o'clock. Auditorium, Peabody College.

20. Birds on the Pacific Islands. Lynds Jones, Oberlin College, Oberlin, Ohio.

Motion pictures showing the colonies of seabirds nesting on the islands off the coast of Oregon and Washington.

21. Some Florida Rookeries. Herbert L. Stoddard, Beachton, Georgia.

Mr. Stoddard honored the W. O. C. by exhibiting for the first time this magnificent series of motion pictures of sub-tropical birds, taken near Tallahassee, showing beautiful portraits and groups of the White and Scarlet Ibises, Little Blue Heron, Wood Ibis, Great Blue Heron, and others. This is one of the finest reels ever shown at our meetings.

22. Georgia Bird Studies. Wallace Rogers, Atlanta, Georgia.

These were unusually good motion pictures of common, every-day birds, such as the Cardinal, Prairie Warbler, Mockingbird, Towhee, Yellow-breasted Chat, etc., showing their poses, behavior, eccentricities, and nests. This film brought to our attention the fact that every bird photographer has in his own neighborhood plenty of opportunity to exercise his skill, without going on long expeditions.

23. The Nest Life of the Loon in northern Wisconsin. Owen J. Gromme, Milwaukee Public Museum, Milwaukee, Wisc.

These remarkable motion pictures of the Loon in its native haunt were shown last year at Chicago, but were new to most of the members at the Nashville meeting. When the close-ups were projected one might easily imagine himself concealed in the blind, within a few feet of the nest. The reel also included most interesting pictures of the young and the parents on the open lake, the latter hysterical, yet bold, in their efforts to guide and protect the young. The Loon is here shown practicing an old avian trick—feigning injury in an endeavor to detract the attention of the pursuer. Splendid pictures.

24. Intimate Studies of Birds by the Banding Method. S. Prentiss Baldwin, Cleveland, Ohio.

A detailed resume, by motion pictures, of the most approved methods of banding birds as practiced at Mr. Baldwin's Laboratory near Cleveland. These pictures afforded a fitting climax to an afternoon of wonderful bird movies.

A short business session followed, after which the formal sessions of the Club were adjourned.

The following additional papers on the program were read by title, because either of lack of time or the absence of the authors:

Notable Records of Rare Birds in Tennessee. By A. F. Ganier, Nashville, Tenn.

Chimney Swifts in November. By Otto Widmann, St. Louis, Mo.

Bob-white. By W. B. Taber, Kansas, Ill.

Bird Parasites. By R. O. Malcolmson, Sioux City, Iowa.

Notes on the Nesting of the Ruby-throated Hummingbird in Tennessee. By Harry S. Vaughn, Nashville, Tenn.

The Bird Life of Thule, Northwest Greenland. By W. Elmer Ekblaw, North Crafton, Mass.

A Study of a Wet Weather Lake. By Gordon Wilson, Bowling Green, Ky.

A Study of a Nesting of Oven-birds. By Mrs. Margaret M. Nice, Columbus, Ohio.

Some New Birds for Oklahoma from Okmulgee and Tulsa Counties. By Edith R. Force and W. H. Koons, Tulsa, Okla.

The Snowy Owl in Ohio. By Edward S. Thomas, Columbus, Ohio.

The manuscripts of most of these papers were at hand and will be published in the WILSON BULLETIN.

On Saturday evening an informal reception was held at the home of Mr. and Mrs. A. F. Ganier, which was most pleasantly enjoyed by all who attended. Mr. Ganier's collections of bird-skins, nests, and eggs taken in the central south were on display. This is, doubtless, the most complete "personally taken" collection of this area in existence. Dr. H. S. Vaughn also exhibited cases containing a complete collection of the nests and eggs of North American warblers.

Early on the following morning cars were in readiness to convey all members to Idlewild Wood on the Stones River, some ten or twelve miles south of Nashville, where Messrs. Ganier, Vaughn, and Mayfield have their summer homes. As the folks assembled they were glad to gather around the huge log fire in Dr. Vaughn's cottage. The forenoon was spent along the crest of the cliffs and among the cedar forests. Early in the afternoon all parties re-assembled, and it was found that a total of thirty-eight species of birds had been seen.

A bountiful dinner was then served by our hosts, the Tennessee Ornithological Society. After an hour or two of visitation individuals or groups found it necessary to take leave for their trains, and thus came to a close the second Nashville meeting of the W. O. C., one never to be forgotten by those in attendance.

Business Sessions were held at the opening and at the close of the meeting. Miss Marjorie Ruth Ross was appointed Secretary *pro tempore*, in the absence of Secretary Gloyd. The minutes of the last annual meeting, in 1926, were read and approved. The Secretary's report was read and approved. The Treasurer's report was not at hand, but the President was instructed to appoint an auditing committee in order that the report may be published.

The President appointed a Nominating Committee consisting of T. C. Stephens, Z. P. Metcalf, and Thos. L. Hankinson; and a Resolutions Committee consisting of Mrs. H. J. Taylor and E. L. Moseley. Doctor Jones reported that about $150 had been received from the sale of old sets and numbers of the Wilson Bulletin, and that this fund would be used in reprinting out-of-print numbers. The Editor made an informal report in which the suggestion was made than an entire number of the Wilson Bulletin be devoted to Wilsoniana, provided sufficient material can be compiled. A committee was authorized to investigate the feasibility of such an enterprise. In the absence of the Chairman, T. H. Whitney, the President made an informal report for the Endowment Committee. The legal steps toward incorporation are necessarily slow, but this work has now been completed. (Later word from Mr. Coffin states that a seal has been made, and forwarded to the Secretary, and that final papers have been completed and delivered to Mr. Whitney). By vote the Club ratified the acts of the Endowment Committee to date. On motion of Mr. Ganier a rising vote of thanks was given to the officers of the Club for their efficient services during the past year.

There was read an invitation from the Director of the University of Michigan Museum, Ann Arbor, to hold the annual meeting of the W. O. C. there in 1928. It was voted unanimously to accept this invitation and hold our meeting at Ann Arbor in 1928. An invitation was then read from the Des Moines Audubon Society to hold the annual meeting in 1929 at Des Moines in conjunction with the meetings of the American Association for the Advancement of Science. This invitation was received with appreciation and referred to the Council for consideration at the proper time. It was then moved and carried that the Club re-affirm its policy of holding its annual meetings in conjunction with the American Association when the latter meets in the Mississippi Valley.

The Committee on Resolutions presented a report thanking the hosts, the Tennessee Ornithological Society, whose officers and committees were so successful in planning and carrying out the arrangements for a most enjoyable and profitable meeting; and thanking the officials of Scarritt College and of Peabody College for their hospitality in opening their doors to our sessions.

The Nominating Committee presented a report recommending the re-election of all officers for the ensuing year. Upon unanimous adoption of this report the following officers were declared elected as officers for the year 1928:

President—Lynds Jones.
Vice-President—Thomas H. Whitney.
Treasurer—J. W. Stack.
Secretary—Howard K. Gloyd.
Councilors—A. F. Ganier, P. B. Coffin, Dr. Alfred Lewy, Chreswell J. Hunt, Clarence Bretsch.

There being no further business, the meeting was formally adjourned.

Items

We surmise that the Nashville chapter of the T. O. S. is perhaps the largest and strongest inland local bird club on record. They form a compact and active group.

The arrangements for the meeting were systematically handled by nine committees, viz., publicity, program and printing, quarters and equipment, annual dinner, transportation and signs, field day, registration and acquaintance, and attendance, with Mr. Ganier the co-ordinating chairman of the general committee.

Our gratitude is due all of the gentlemen who loaned reels of moving pictures for the Saturday afternoon program. It was a wonderful lot of pictures. H. L. Stoddard's pictures show clearly enough that there are still beautiful and picturesque birds in the south which need protection.

Incidentally, while at the reception Saturday evening some of us learned that Mr. Ganier plays the shell game, having in his cabinet quite an assortment of local land and fresh-water shells.

Mr. and Mrs. C. L. Harris came all the way from Eldorado, Kansas, to attend the meeting, having had a taste at Kansas City in 1925.

Three old standbys are running each other a close race for attendance records. Lynds Jones has missed only one of the fourteen meetings, A. F. Ganier has attended the last ten, and T. C. Stephens has attended eleven out of the fourteen.

Mr. McNish was driving a group of young ladies out to the Stones River on Sunday morning, when they passed a road sign which read: "John II, 25-26." It caught McNish's eye and he read it to the crowd thus, "John eleven, 25-26." Some of the young ladies giggled, and Mrs. Taylor said, "Why, Mr. McNish, you do not seem to be very familiar with your Bible." "Oh," replied McNish, "My Bible is Chapman's Handbook, and I know that all right." [We do not find that many verses in John II.—Ed.]

There were many attractive and novel items in the field day luncheon menu. Fricasseed pig and "spiced round" were new to many of us. We must compliment Dr. Vaughn also upon his coffee. The Committee in charge of this affair consisted of Dr. Vaughn, Mrs. A. F. Ganier, and Mrs. W. M. Leftwich, and the committee performed its function with great credit and generosity.

The high-light of the field day occurred when a pair of Pileated Woodpeckers permitted a close-up view by the crowd and leisurely did their stunts.

At the time set for the group photograph to be taken the rain was coming down in torrents. A good group photograph was made on Saturday, however, while many of the members were absent. Copies of this picture may be obtained through Mr. Ganier at seventy-five cents each.

According to the official reports the Nashville meeting of the A. A. A. S. was attended by 1662 scientists and their friends.

REGISTER OF ATTENDANCE AT THE SECOND NASHVILLE MEETING

From the DISTRICT OF COLUMBIA: W. B. Bell, Washington. From PENNSYLVANIA: Miss Marjorie Ruth Ross, State College. From NEW YORK: Dr. Bertha Chapman Cady, Miss Grace G. Wyman, Dr. G. Clyde Fisher, New York. From MASSACHUSETTS: Miss Claudia Schmidt, Springfield. From MICHIGAN: Prof. T. L. Hankinson, Ypsilanti. From OHIO: Dr. Lynds Jones, Oberlin; Prof. E. L. Moseley, Bowling Green. From CALIFORNIA: Mrs. H. J. Taylor, Berkeley. From TEXAS: Miss Elizabeth Sterry, San Marcos; Miss Very Kearby, Orange; Dr. C. I. Reed, Dallas. From KANSAS: Mr. and Mrs. C. L. Harris, Eldorado. From NEBRASKA: Miss Mollie Vlasnik, Niobrara. From IOWA: Miss Lillian Hethershaw, Des Moines; Prof. E. L. Fitzpatrick, Cedar Rapids; Mrs. Mary L. Bailey, Mr. and Mrs. T. C. Stephens, Sioux City. From MISSOURI: Mr. and Mrs. A. F. Satterthwait, Webster Grove. From MISSISSIPPI: Prof. R. N. Lobdell, A. & M. College. From ALABAMA: W. A. Ruffin, Prof. Henry G. Good, Prof. J. M. Robinson, Auburn. From GEORGIA: Miss Ethel Purcell, Atlanta; Prof. M. C. Quillian, Macon. From NORTH CAROLINA: Miss Betty White, Greenville; Prof. Zeno P. Metcalf, Raleigh. From KENTUCKY: Miss Emilie Yunker, Mrs. C. E. McBride, Louisville; Miss Grace Wyatt, Murray. From TENNESSEE (outside of Nashville): Miss Dorothy Bachtel, Chattanooga; John M. Frazier, Cleveland; Miss Florence English, Adamsville; Prof. J. A. Robins, McKenzie; E. M. McNish, Madison; Miss Mary Beard, Miss Evelyn Willoughby, Mr. and Mrs. P. C. Avery, Knoxville. From NASHVILLE: Prof. J. M. Shaver, Dr. H. S. Vaughn, A. F. Ganier, W. M. Walker, Jr., Dr. Geo. R. Mayfield, R. A. Wilson, Ben B. Coffee, Miss Alma Hollinger, Miss Jessie French, Miss Margaret McIntyre, Miss Frances Bottom, Mrs. K. P. Wright, Mrs. E. B. Walker, Mrs. A. F. Ganier, Mrs. G. R. Mayfield, Mr. and Mrs. W. M. Leftwich, Mrs. H. S. Vaughn, Grover Cook, Vernon Sharp, Jr., Harry C. Monk, Prof. A. C. Webb, H. A. Webb, R. A. Wilson, L. P. Bellah, H. B.Bradley, J. T. Moore, P. L. Cox, Mr and Mrs. J. M. Cate, Mrs. Eugene Crutcher, Miss Lillian Taylor, Mrs. A. Loveman, Mrs. T. C. Laskey.

Summary of Attendance: District of Columbia, 1; Pennsylvania, 1; New York, 3; Massachusetts, 1; Michigan, 1; Ohio, 2; California, 1; Texas, 3; Kansas, 2; Nebraska, 1; Iowa, 5; Missouri, 2; Mississippi, 1; Alabama, 3; Georgia, 2; North Carolina, 2; Kentucky, 3; Tennessee (outside of Nashville), 9; Nashville, 32. Total, 75; total outside of Nashville, 43. Total attending the banquet, 46. Total on the Field Day trip, 31.

REPORT OF THE SECRETARY FOR 1927

To the Officers and Members of the Wilson Ornithological Club:

Allow me to submit a report of the activities of the Secretary's office for the current year.

The campaign for increasing the membership has been in progress throughout the year, although it was interrupted to some extent on my part by spending the summer months in camp with inadequate facilities for such work. A total of sixty-five members and subscribers have been added to the roll; sustaining, none; 26 active, 46 associate, and 4 subscribers.

The distribution of new members by states is as follows: California 2, Connecticut 1, Florida 1, Georgia 3, Idaho 1, Illinois 10, Indiana 1, Iowa 6, Kentucky 4, Kansas 3, Maine 1, Maryland 1, Michigan 2, Minnesota 2, Missouri 2, Montana 2, Nebraska 3, New York 2, North Carolina 1, North Dakota 1, Ohio 8, Oklahoma 2, Oregon 1, Pennsylvania 3, South Carolina 2, South Dakota 1, Tennessee 6, Vermont 1, Virginia 1, Wisconsin 2, District of Columbia 1.

Those who sent in the applications of new members are as follows: T. C. Stephens 24, H. K. Gloyd 18, A. F. Ganier 6, J. W. Stack 6, W. A. Strong 4, Emilie Yunker 4, W. I. Lyon 3, F. A. Hanawalt 2, P. A. Livingston 2, and one each by Gordon Wilson,Edith B. Stoltz, Althea R. Sherman, Margaret M. Nice, G. R. Mayfield, H. L. Stoddard, W. W. Bennett, G. F. Abbey, and George L. Fordyce.

The total membership now is 663; honorary 4, sustaining 68, active 244, associate 347. In addition to these totals the BULLETIN has 39 subscribers according to the Secretary's files. During the current year 17 members have resigned, 6 are deceased, 2 subscriptions have been discontinued, and 11 have been dropped from the roll because of long-standing delinquency, or because of unknown address. The total number of members discontinued for these reasons is 36.

There is further need of work in building up the membership in the middle west and south. It is to be hoped that the members in these regions will make a special effort to stimulate local interest in the work of the Wilson Club, and every member of the organization is urged to help by notifying the Secretary of colleagues, acquaintances, and correspondents who may be prospective members.

An itemized list of the Secretary's expenses has been sent to the Treasurer each month. The helpful co-operation of the other officers and members of the Club throughout the year has been greatly appreciated.

Very sincerely yours,

HOWARD K. GLOYD, *Secretary*.

REPORT OF THE TREASURER FOR 1927

East Lansing, Mich., November 1, 1927.

Receipts for 1927

Received from former Treasurer	$318.21	
Dues from Sustaining Members	290.00	
Dues from Active Members	510.00	
Dues from Associate Members	387.00	
Subscriptions from Organizations	48.00	
Sale of exchanges	57.00	
Special contribution	20.00	
Excess on checks and sale of Bulletins	7.92	
Total income		$1,638.13

Disbursements for 1927

Printing 4,000 mailing envelopes	$ 27.00	
Printing four issues, Wilson Bulletin	1,034.70	
Correction of error	6.50	
Cover card envelopes	4.50	
Cost of mailing Bulletins for 1927	24.73	
Addressograph work	4.00	
Halftones and zinc plates	62.97	
Cost of publication		$1,164.40
Secretary's expense		60.39
Treasurer's expense		14.64
Cost of Incorporation		60.00
Refund to Morningside College		2.37
Printing of Stationery		22.00
Total disbursements		$1,323.80
Cash balance on hand		314.33
Endowment Fund on hand		25.00
Total on hand, November 1, 1927		$ 339.33

J. W. Stack, *Treasurer.*

REPORT OF THE ENDOWMENT COMMITTEE

To the Officers and Members of the Wilson Ornithological Club:

The Trust Agreement between the Wilson Ornithological Club and the Illinois Merchants' Trust Company is now complete. Everything has now been done that can be done in preparation for the fund. We are now ready to receive contributions.

Respectfully,

Thos. H. Whitney, *Chairman.*

Atlantic, Iowa.

The Cleveland Meeting

On November 25, 26, and 27, 1927, a joint meeting of the Wilson Ornithological Club and the Inland Bird Banding Association was held at the Cleveland Museum of Natural History. A detailed report of this meeting has not been sent for publication, but we publish below the announced program; there were doubtless some variations in the actual proceedings which are not recorded here.

The Cleveland Program

Friday, November 25, 1927

Forenoon Session, 10:00 o'clock. Cleveland Museum of Natural History.

Address of welcome, by Mr. L. B. Williams, President of the Cleveland Museum of Natural History.

Response, by Dr. Lynds Jones, President of the Wilson Ornithological Club.

1. In Memoriam—Louis Agassiz Fuertes. By J. P. Harris, Cleveland, Ohio.
2. Local distribution of the House Wren. By W. W. Bowen, Baldwin Research Laboratory, Cleveland, Ohio.
3. Bird Banding at Michigan State College. Professor J. W. Stack, East Lansing, Michigan.
4. Diseased Feet of Chipping Sparrows. By T. E. Musselman, Quincy, Illinois.
5. A Study of a Nesting of Myrtle Warblers. By Mrs. Margaret M. Nice, Columbus, Ohio.
6. A Study of Perching Birds Carrying Things in their Feet during Flight. Robert L. Baird, Oberlin, Ohio.
7. A Wild Game Farm—Small Movie. By Chester K. Brooks, Mentor, Ohio.
8. Birds of Treasure Island. (Slides). By George Finlay Simmons, Cleveland Museum of Natural History.
9. Glimpses of Bird Life in the Magdalen Islands. (Slides). By Herbert W. Brandt, Cleveland, Ohio.

Afternoon Session.

In the early afternoon the program included an inspection of the aviary of foreign birds at the home of Mr. Kenyon V. Painter. In the evening open house was held at the homes of Mr. and Mrs. S. Prentiss Baldwin and Mr. and Mrs. Herbert W. Brandt.

Saturday, November 26, 1927

Forenoon Session, 10:00 o'clock. Cleveland Museum of Natural History.

10. Temperature Control in Nestling Birds. (Slides). By S. Prentiss Baldwin, Cleveland, Ohio.
11. Notes on Harlan's Hawk. By C. W. G. Eifrig, Oak Park, Illinois.
12. The Short-billed Marsh Wren. By Frank M. Phelps, Elyria, Ohio.
13. Banding Birds on the South Atlantic Expedition of the Cleveland Museum of Natural History. By W. Kenneth Cuyler, Cleveland Museum of Natural History.
14. Relation of Flood Control to Bird Life in Miami Valley, Ohio. By Ben J. Blincoe, Dayton, Ohio.

THE CLEVELAND MEETING OF THE W. O. C. AND THE I. B. B. A.

KEY TO THE GROUP PICTURE: 1, C. H. Ehrbar. 2, Mrs. L. H. Ehrbar. 3, C. W. G. Eifrig. 4, Miss Brandt. 5, Mrs. C. Bretsch. 7, Mrs. Lynds Jones 8, Dr. Lynds Jones 9, S. Prentiss Baldwin. 11, Mrs. W. I. Lyon. 12, Prof. J. W. Stack. 13, Mrs. W. W. Bowen. 15, Wm. G. Cramer. 16, Mary C. Palmer. 18, Percival B Coffin. 19, W. W. Bowen. 20, Mrs. Margaret M. Nice. 21, Mrs. Percival B. Coffin. 22, Mrs. C. E. Feser. 23, Mrs. I. T. Frary. 24, Miss A. E. Layer. 26, George T. Jones. 27, S. E. Perkins III. 29, J. E. Hubbe. 30, Mrs. Herbert W. Brandt. 31, Herbert W. Brandt. 32, Leonard Wing. 33, Prof. E. L. Moseley. 34, J. Duer. 35, Ben J. Blincoe. 36, George Wing. 37, C. M. Shipman. 39, George L. Fordyce. 40, F. C. Lincoln. 41, R. L. Baird. 42, Emerson Kemsies. 43, C. Bretsch. 44, H. L. Madison 45, D. B. Hillmer. 47, Harold Wing. 48, E. S. Thomas. 49, John C. Pallister. 51, Mrs. John C. Pallister. 52, A. B. Williams. 53, Prof J. S. Hine. 54, W. Kenneth Cuyler. 55, A. B. Fuller.

15. Notes on the Nesting Habits and Song of the Mockingbird. By Dr. J. Paul Visscher, Western Reserve University, Cleveland, Ohio
16. Bob-white. By W. B. Taber, Jr., Kansas, Illinois.
17. A Study of a Wet-weather Lake. By Gordon Wilson, Bowling Green, Ky.
18. Bird Banding on Islands in Lake Michigan and Lake Huron. By Wm. I. Lyon, Waukegan, Illinois.

Afternoon Session, 2:30 o'clock. Cleveland Museum of Natural History.

19. Rapping the Raptores. By C. M. Shipman, Willoughby, Ohio.
20. Recent Explorations on the American Eagle. By Dr. Francis H. Herrick, Western Reserve University.
21. Banding the European Starling. By E. S. Thomas, Columbus, Ohio.
22. Chimney Swifts in November. By Otto Widman, St. Louis, Mo.
23. Seasonable Changes in a Texas Bird Habitat. By C. W. G. Eifrig, Oak Park, Illinois.
24. Birds on the Pacific Islands. (Small movie). By Dr. Lynds Jones, Oberlin College, Oberlin, Ohio.
25. Traps and Baits. (Slides). Professor J. W. Stack, East Lansing, Michigan.
26. Bird Hunting with a Camera along Lake Erie. By Arthur B. Fuller, Cleveland Museum of Natural History.
27. Methods in Bird Research. (Motion pictures). By S. Prentiss Baldwin, Cleveland, Ohio.

Evening Session, 7:00 o'clock.

At this time the banquet was held in the Hotel Statler, with Dr. Francis H. Herrick, dean of Ohio ornithologists, presiding, and Mr. S. Prentiss Baldwin, acting as toastmaster.

On the following day, Sunday, automobiles conveyed the visitors to the Baldwin Bird Laboratory, at Gates Mills. In the afternoon a similar visit was made to the Game Preserve of Mr. Chester Brooks, at Mentor.

Items

There were several very unusual and most enjoyable features of the Cleveland meeting, besides the excellent program of papers.

The visit on Friday afternoon to the estate of Mr. Kenyon V. Painter proved to be wonderfully interesting. Mr. Painter has a large aviary of foreign birds, the history of which was carefully described for the visitors. After showing his birds Mr. Painter conducted the party to his library and then to his trophy room, an unusually large reception hall completely filled with specimens of mammals, birds, fish, and animals of many other kinds.

On Friday evening the beautiful home of Mr. and Mrs. S. Prentiss Baldwin was opened to the visitors. Here we enjoyed a glimpse of Mr. Baldwin's library and comfortable den. Later in the evening a call was made at the home of Mr. and Mrs. Herbert W. Brandt, at Shaker Heights. Mr. Brandt also has a large room filled with specimens. The large collection of birds' eggs was displayed in round, glass-covered boxes, thus giving a more realistic setting. Mr. Brandt's sons exhibited a very creditable collection of local butterflies and other insects.

The banquet on Saturday evening was a novel one. Those present will not forget the officious head-waiter who spoke rudely to some of the guests. This was carried to a point which required the presence of the manager, who peremptorily discharged the offender. The clever actor was now retained for the entertainment of the banqueters. A model of a bird sculptured in ice adorned each service of dessert.

The visit to Mr. Baldwin's laboratory on Sunday was a memorable event. Some of the traps contained birds at the time. After a stop at Mr. Baldwin's summer home the visitors were conducted to the laboratory itself, where all the mysterious apparatus was exhibited in full operation. At noon automobiles carried the party to Willoughby, where a steak dinner was to have been cooked in the oven over live coals; but on account of rain a large hall with an open fire-place was secured, which permitted indoors much of the freedom of an outdoor lunch.

In the afternoon another jaunt was taken to the home of Mr. Chester Brooks, at Mentor. It has been stated that Mr. Brooks has raised more species of wild ducks and geese than anyone else in America. Those who saw his immense flocks of wildfowl did not question this statement.

Merely as a matter of record it may be stated that the Cleveland meeting was a success; it could not have been otherwise with the enthusiastic and generous local constituency.

COMMUNICATIONS

Editor, WILSON BULLETIN: On reading your article entitled "Down with the Wren Boxes," I am surprised to think that you would print such an article on account of the harm you will do this dear little bird, which is not only strictly insectivorous, taking its quota of mosquitos, moths, and other insects every day, but is one of the few birds that sings all day, from before the sun comes up until after the sun goes down, and it has more friends among bird lovers than any other song bird.

I attract all the wrens to beautiful "Bird Lodge" that I can get to make their homes here, and I have yet to see one interfere or harm other birds or bird's nests. I have about twenty wren houses up and most of them occupied and will put up five or ten more the coming year as I dearly love to have this sweet little singer at "Bird Lodge;" they lend such an air of beauty and harmony with their pert appearance and sweet singing.

My long experience with the song birds (covering forty-five years) has shown me that birds have different dispositions the same as people, and at times they are cross and irritable, this fretful period only appearing on cold or rainy days. I can only think that the bird that Miss Sherman speaks of must have been a bad actor.

Yours very truly,

JOSEPH H. DODSON,
President American Audubon Association.

August 4, 1925.

[It has been suggested that the pages of the WILSON BULLETIN must be open to both sides of the House Wren controversy; hence we are glad to present the preceding communication from Mr. Dodson, the well-known bird house dealer.—Ed.]

SUMMER COURSES IN ORNITHOLOGY

It is the desire of the WILSON BULLETIN to use this page in each March issue for announcements of summer courses in ornithology in the inter-mountain region.

THE NINTH TOUR OF THE ECOLOGY CLASS OF OBERLIN COLLEGE is scheduled to leave Oberlin, Ohio, on June 20, 1928, and return to Oberlin on August 15. The objective will be the Pacific Coast, and the route will include Lake Okoboji, Iowa, the badlands and Black Hills of South Dakota, Yellowstone Park, Glacier Park, Ranier Park, California, Yuma, Phoenix, the Grand Canyon, across Texas, Oklahoma, and Arkansas, and on to Nashville; thence to Louisville, Cincinnati, and Oberlin. The new Ford cars will be used for transportation. An opportunity for a reconnaissance of plant and animal life with particular attention to birds. For further information address, DR. LYNDS JONES, 352 WEST COLLEGE STREET, OBERLIN, OHIO.

A NATURE STUDY CAMP UNDER THE AUSPICES OF PENNSYLVANIA STATE COLLEGE will be conducted during the summer of 1928 in the heart of the Allegheny Mountains. Instruction will be by a staff of experts. Three weeks of intensive field work for teachers and nature lovers. For announcements address, PROF. GEORGE R. GREEN, STATE COLLEGE, PA.

THE SECOND ITINERANT FIELD COURSE IN ORNITHOLOGY WILL BE OFFERED BY MORNINGSIDE COLLEGE in 1928, June 7 to August 15. The objective will be Yellowstone National Park. The route will include Lake Okoboji, Lake Itasca and the pine forests of Minnesota, the prairies, sloughs, and badlands of North Dakota, Yellowstone Park and vicinity, the plains of Wyoming, and return by way of either the Black Hills of South Dakota or the Sand Hills of Nebraska. About eight weeks of camp life and travel, 4000 miles, college credit, $250. For announcements address, PROF. T. C. STEPHENS, MORNINGSIDE COLLEGE, SIOUX CITY, IOWA.

A COURSE IN ORNITHOLOGY will be offered by Prof. Howard K. Gloyd at the Kansas State College of Agriculture. For information address, PROF. HOWARD K. GLOYD, MANHATTAN, KANSAS.

TWO COURSES IN ORNITHOLOGY WILL BE GIVEN BY DR. ALFRED O. GROSS this summer at the Biological Station of the University of Michigan, at Douglas Lake. The twentieth season of this Station will be from June 25 to August 17, 1928. For further information address the Director, DR. GEORGE R. LA RUE, UNIVERSITY OF MICHIGAN, ANN ARBOR, MICHIGAN.

Annual Meetings of the Wilson Ornithological Club

	Retiring President
1914—Chicago. February 5. Chicago Academy of Sciences.	
1914—Chicago. December 29-30. New Morrison Hotel	T. C. Stephens
1915—Columbus. December 28-29. With the A. A. A. S.	T. C. Stephens
1916—Chicago. December 27-28. New Morrison Hotel	T. C. Stephens
1917—Pittsburgh. January 1-2, 1918. With the A. A. A. S.	W. F. Henninger
1918—No meeting on account of the exigencies of war	M. H. Swenk
1919—St. Louis. December 29-30. With the A. A. A. S.	M. H. Swenk
1920—Chicago. December 27-28. With the A. A. A. S.	R. M. Strong
1921—Chicago. December 26-27. The Field Museum	R. M. Strong
1922—Chicago. October 26	T. L. Hankinson
1923—Cincinnati. Dec. 31, 1923-Jan. 1, 1924. With the A. A. A. S.	T. L. Hankinson
1924—Nashville. November 28-29-30. Peabody College	A. F. Ganier
1925—Kansas City. December 28-29. With the A. A. A. S.	A. F. Ganier
1926—Chicago. November 26-27. Chicago Academy of Sciences	A. F. Ganier
1927—Nashville. Dec. 30, 1927-Jan. 1, 1928. With the A. A. A. S.	Lynds Jones